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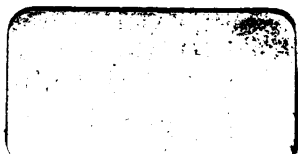
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**LECTURES**  
**ON**  
**POPULAR EDUCATION.**





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LECTURES

ON

POPULAR EDUCATION;

DELIVERED TO THE

EDINBURGH PHILOSOPHICAL ASSOCIATION,  
IN APRIL AND NOVEMBER, 1833;

AND PUBLISHED

BY REQUEST OF THE DIRECTORS OF THE ASSOCIATION.

BY GEORGE COMBE.

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"The efforts of the people are still wanting for the purpose of promoting Education; and Parliament will render no substantial assistance, until the people themselves take the matter in hand with energy and spirit, and the determination to do something."—*Lord Brougham's Speech at York, 10th October, 1833.*

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SECOND AMERICAN EDITION, CORRECTED AND ENLARGED.

BOSTON :  
MARSH, CAPEN, LYON, AND WEBB.

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NEW YORK, April 27, 1839.

To the Honorable HORACE MANN,  
Boston.

DEAR SIR,

In no country which I have visited, have I met with an individual more deeply penetrated by a sense of the high importance of Education than you ; in none, have I seen one, whose moral sentiments were more warmly engaged in the cause ; and I have conversed with few, who, according to my humble judgement, could, compete with you, in the soundness, depth, and extent, of their knowledge of the means by which Education may be most successfully promoted. I rejoice, therefore, in seeing the interests of this great cause, in the Commonwealth of Massachusetts, committed to your care. In dedicating, by permission, this little volume to you, I desire to express the esteem and affection with which your excellent qualities have inspired me ; and in adding my earnest wishes for your long life and prosperity, I echo only the universal sentiment of all to whom your attainments, and the purposes to which they are devoted, are known.

I am,

Dear Sir,

Your faithful and attached friend,

GEO. COMBE.



## P R E F A C E

### TO THE SECOND EDINBURGH EDITION.

THE following Lectures were first delivered in April, 1833, at the end of a course of Lectures on Phrenology ; and again, in the month of November, of the same year. At the request of the Directors of the Philosophical Association, they were then published in the form of a pamphlet. Immediately after their appearance, they were, with my permission, reprinted by Messrs. W. and R. Chambers, in their widely circulated journal. At a later period, a part of them was incorporated into the text of the 'Constitution of Man.' In these circumstances, it seemed unnecessary to reproduce the original lectures in a separate form ; and they were allowed to remain, for some time, out of print. Having been informed, however, that the public continued to demand the work, the present edition has been prepared, and I have endeavored to make some corrections, additions, and improvements, which I hope may increase its value. In its present form, it contains a condensed and comprehensive summary of the chief objects which should be aimed at in popular education.

Since these Lectures first appeared, a great improvement has taken place in popular education, and the principles and practices which they recommended, although

at first assailed with ridicule, have already, to a considerable extent, been carried into effect, with the happiest results. I allude, particularly, to the diffusion of useful knowledge, by lectures on science, to popular audiences. There is an increasing demand, throughout the country, for such instruction ; and lecturers are much wanted. So far back as 1796, Dr. Beddoes published ‘ A Lecture, introductory to a course of popular instruction on the constitution and management of the human body ;’ and in 1797, lectures on Animal and Human Physiology were delivered to a miscellaneous audience, of both sexes, at Bristol. When I ventured to revive this practice, in my own courses of instruction, and recommended it, in these published Lectures, it was objected to, as improper and dangerous. The subject, however, has proved so attractive and useful, that already it has ceased to be a novelty ; and numerous successful courses of lectures have been delivered on it in various parts of the country.

*Edinburgh, 16th January, 1837.*

## P R E F A C E

### TO THE SECOND AMERICAN EDITION.

A NEW Edition of this work has been called for, and a residence of six months in America, has enabled me, in some degree, to judge of its adaptation to the circumstances of this people. In no country, which I have visited, have I observed a more general and earnest interest in education, than that which prevails in the United States. Among the people at large, however, who are their own rulers, and the fountains of all useful institutions, there is still a want of information, concerning the constituent elements of a valuable education, the qualifications of a good Teacher, and the best methods of communicating instruction to children. Many valuable works, by American authors, already exist, well calculated to supply this deficiency, and more are daily issuing from the press. The present work pretends to neither novelty nor superiority over these productions. The apology for its appearance, is, that the field is immense ; and the laborers are still too few. Different works suit different readers ; and where so many minds need to be informed, the humblest effort may be useful.

GEORGE COMBE.

*Philadelphia, 25th March, 1839.*



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LECTURES  
ON  
POPULAR EDUCATION.

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LECTURE I.

A FEW years ago, no question was more frequently asked, than, What is the use of Education ? and to none, was it more difficult to give a satisfactory answer ; not because education was of no use, but because utility, itself, was viewed as something so different, by different individuals, that it was impossible to show that education was calculated to realize the precise advantage which each aspired to attain. Besides, education is calculated to correct so many errors in practice, and to supply so many deficiencies in human institutions, that volumes would be necessary to render its real importance thoroughly conspicuous.

Owing to the want of a philosophy of mind, education has hitherto been conducted empirically; and, instead of obtaining from it a correct view of the nature of man, and of the objects and duties of life, each individual has been left to form, upon these points, theories for himself, derived from the impressions made upon his own mind, by

the particular circumstances in which he has been placed. No reasonable person assumes himself to know the philosophy of Astronomy, or of Chemistry, or of Physiology, without study, and without reaching clear, consistent, and certain principles ; yet, in the philosophy of Mind, the practice is quite different. Every professor, school-master, author, editor, and pamphleteer ; every member of Parliament, counsellor, and judge ; has a set of notions of his own, which, in his mind, hold the place of a system of the philosophy of man ; and, although he may not have methodized his ideas, or even acknowledged them, to himself, as a theory, yet they constitute a standard, to him, by which he practically judges of all questions in morals, politics, and religion. He advocates whatever views coincide with them, and condemns all that differ from them, with as little hesitation as a professed theorist himself, and without the least thought of trying his own principles by any standard whatever. In short, in the great mass, even of educated men, the mind, in judging of questions relating to morals, politics, and social institutions, acts on its merely instinctive impressions, and exhibits all the confiction and uncertainty of feeling, unguided either by principles of reason, or by facts ascertained by experience. Hence, public measures in

neral, whether relating to education, religion, trade, manufactures, provision for the poor, criminal law, or to any other of the dearest interests of society, instead of being treated as branches of one general system of economy, and adjusted on scientific principles, each in harmony with the others, are too often supported or opposed on narrow and empirical grounds ; and discussions regarding them, occasionally call forth displays of ignorance, prejudice, and intolerance, at once disgraceful to the age, and calculated greatly to obstruct the progress of

substantial improvement. Indeed, unanimity, on questions, of which the first principles must be found in the constitution of human nature, will be impossible, even among sensible and virtuous men, so long as no standard of mental philosophy is admitted to guide individual feelings and perceptions. Hence, when a young man educated as a merchant, asks the use of any thing, the only answer which will thoroughly interest him, will be, one showing how much wealth may be acquired by it. The devoutly religious professor, will acknowledge that, alone, to be useful, which tends directly to salvation ; while the votary of fashion, will admit the utility of such pursuits, only, as are recognised by the refined, but frivolous, and generally ill-informed, circle, which, to him, constitutes the highest tribunal of wisdom. To expound, to such persons, principles affecting the general interests of society, and to talk to them of schemes for promoting the happiness of human beings, in their various conditions of husbands and wives, parents and children, masters and servants, teachers and pupils, governors and subjects, appears like indulging a warm imagination in fanciful harangues. They think that the experience of six thousand years is sufficient to show, that man is not destined, in this life, to be greatly different from what he has always been, and now is ; and that any measures pretending greatly to improve his condition, however desirable, are not at all to be believed in by sensible and practical people. This state of things could not exist, if education were founded on a true system of human nature, and an exposition of its relations to the external world.

To enable us to form a just estimate of our position as intelligent and accountable beings, introduced into a world prepared for our reception, and adapted to our nature by Divine power, wisdom, and goodness, let us

briefly investigate, first, the general aspect of external nature ; and, secondly, our own constitution.

The first fact, that presents itself to our notice in this inquiry, is, that the constitution of this world does not look like a system of optimism, but appears to be arranged, in all its departments, on the principle of gradual and progressive improvement. Physical nature, itself, has undergone many revolutions, and apparently has constantly advanced. Geology seems to show a distinct preparation of it, for successive orders of living beings, rising higher and higher in the scale of intelligence and organization, until man appeared.

The globe, in the first state in which the imagination can venture to consider it, says Sir H. Davy, appears to have been a fluid mass, with an immense atmosphere, revolving in space round the sun. By its cooling, a portion of its atmosphere was probably condensed into water, which occupied a part of its surface. In this state, no forms of life, such as now belong to our system, could have inhabited it. The crystalline rocks, or, as they are called by geologists, the primary rocks, which contain no vestiges of a former order of things, were the results of the first consolidation on its surface. Upon the further cooling, the water, which, more or less, had covered it, contracted ; depositions took place ; shell-fish and coral insects were created, and began their labors. Islands appeared in the midst of the ocean, raised from the deep by the productive energies of millions of zoophytes. These islands became covered with vegetables fitted to bear a high temperature, such as palms, and various species of plants, similar to those which now exist in the hottest parts of the world. The submarine rocks, of these new formations of land, became covered with aquatic vegetables, on which various species of shell-fish, and

common fishes, found their nourishment. As the temperature of the globe became lower, species of the oviparous reptiles appear to have been created to inhabit it ; and the turtle, crocodile, and various gigantic animals of the saurian (lizard) kind, seem to have haunted the bays and waters of the primitive lands. But in this state of things, there appears to have been no order of events similar to the present. Immense volcanic explosions seem to have taken place, accompanied by elevations and depressions of the surface of the globe, producing mountains, and causing new and extensive depositions from the primitive ocean. The remains of living beings, plants, fishes, birds, and oviparous reptiles, are found in the strata of rocks which are the monuments and evidence of these changes. When these revolutions became less frequent and the globe became still more cooled, and inequalities of temperature were established by means of the mountain-chains, more perfect animals became its inhabitants, such as the mammoth, megalonix, megatherium, and gigantic hyena, many of which have become extinct. Five successive races of plants, and four successive races of animals, appear to have been created and swept away by the physical revolutions of the globe, before the system of things became so permanent, as to fit the world for man. In none of these formations, whether called secondary, tertiary, or diluvial, have the fossil remains of man, or any of his works, been discovered. At last, man was created, and since that period, there has been little alteration in the physical circumstances of the globe.\*

\* The description in the text, is extracted, chiefly from 'The Last Days of a Philosopher,' by Sir Humphrey Davy, 1831, p. 184, on account of its popular style ; but similar representations may be found in all recent works on Geology,—particularly 'A Geological Manual, by

“In all these various formations,” says Dr. Buckland, “the coprolites” (or the dung of the saurian reptiles, in a fossil state) “form records of warfare waged by successive generations of inhabitants of our planet on one another ; and the general law of Nature, which bids all to eat and to be eaten in their turn, is shown to have been coextensive with animal existence upon our globe, the *carnivora* in each period of the world’s history fulfilling their destined office to check excess in the progress of life, and maintain the balance of creation.”

H. T. De La Beche ;’ in the ‘Penny Magazine,’ of 1833, in a very instructive popular form ; Sedgwick’s ‘Discourse on the Studies of the University of Cambridge,’ third edition ; and ‘Geology and Mineralogy considered with Reference to Natural Theology, by the Rev. William Buckland, D. D.’ The evidence appears to be strong, that the earth itself has undergone a succession of changes, each leaving it in a condition for supporting animal life of a higher order than before ; and also, that it has actually been inhabited by a succession of races of animals, each rising higher than its predecessors in the scale of physical and mental development. But in regard to the animal and vegetable inhabitants of the globe, it is one question, whether the different races resulted from the successive development of the elements of organic life advancing through different stages, like a vegetable assuming different forms in spring, summer, and autumn ; and another question, whether new races were created at each geological epoch, in relation to the peculiar circumstances of the globe at the time, and perished when these ceased. The latter view, in regard to organized beings, is generally adopted by geologists. Mr. Lyell, in his ‘Principles of Geology,’ vol. i. chap. ix., controverts the doctrine of a progressive development of plants and animals in the former sense. Dr. Buckland, in the work before cited, adds the following remarks as foot-notes : “Mr. Lyell, in the four first chapters of the second volume of his ‘Principles of Geology,’ has very ably and candidly examined the arguments that have been advanced in support of the doctrine of transmutation of species, and arrives at the conclusion, that species have a real existence in Nature, and that each was endowed, at the time of its creation, with the attributes and organization by which it is now distinguished. M. De La Beche also says, (‘Geological Researches,’ 1834, p. 239, first edition, 8vo,) ‘there can be

This brief summary of the physical changes of the globe, is not irrelevant to our present object. The more that is discovered of creation, the more conspicuously does uniformity of design appear to pervade its every department. We perceive, here, the physical world gradually *improved* and *prepared for man*. These remarks on the past history of the globe, are offered merely as analogical considerations, tending to show that a principle of progressive advancement, whether by distinct and successive acts of creation, or by the developement of

no doubt that many plants can adapt themselves to altered conditions, and many animals accommodate themselves to different climates ; but when we view the subject generally, and allow full importance to numerous exceptions, terrestrial plants and animals seem intended to fill the situations they occupy, as these were fitted for them ; they appear created as the conditions arose, the latter not causing a modification in previously existing forms productive of new species.' "

This subject, however, is still involved in great obscurity. Mr. Hewett Watson remarks, that " Geology has shown nothing whatever concerning the creation of races or individuals. Neither the mode of creation, nor the first state, nor yet the last state, of any race or species, has been in the slightest degree explained by geological discovery. The fossil records of past life, are limited to incomplete representations of the state of individuals at death : and in the older deposits, the remains are scarcely more than mere copies of their shapes. In the more recent deposits, good skeletons, &c. are found ; but in all likelihood, the stony models and skeletons, which have hitherto met the eye of man, will not bear the proportion of one individual out of every million that have existed. Granting this, how can any sober reasoner assert positively, on such meager evidence, that intermediate forms and structures have not existed ? Geology is far too imperfect, yet, to allow of any fair presumption, from its individual facts, either of the transition or non-transition of one species into another. On the great scale, it is as clear as such evidence can make it, that one species has been substituted for another, but we know not how this substitution has been brought about ; and *allowing for the difference of time*, it may well be questioned whether the changes brought to light, by geological researches, at all exceed the changes now effected in the vegetable world by human efforts."—*Examination of Mr. Scott's Attack, &c.* p. 23.



original capacities, may be traced in organic and inorganic beings ; from which I infer, that future improvement may reasonably be expected. This expectation is warranted, especially, in regard to organized beings ; for we observe that great improvements have been effected in different species of vegetables and animals, by human sagacity and attention. "In the absence," says Mr. Watson, "of any proper definition of the term *improvement*, we may safely leave it to the general verdict of the public, whether the green-gage plum-tree with its luscious fruit, is not an improvement upon the austere-berried sloe-bush ; whether the pippin and codlin apples are not improvements upon the wild crab ; and whether the swift-footed greyhound, the intelligent lapdog, and the powerful mastiff, are not improvements upon any known wild race of dog, wolf, or fox,—for it is doubtful whether the dog has not descended from one or both of the two latter stocks."

Let us now contemplate Man himself, and his adaptation to the external creation. The world, we have seen, was inhabited by living beings, and death and reproduction prevailed, before Man appeared. The order of creation seems not to have been changed at his introduction ; he appears to have been adapted to it. He received from his Creator an organized structure, and animal instincts. He took his station among, yet at the head of, the beings that existed at his creation. Man is, to a certain extent, on a level with the lower animals in his structure, powers, feelings, and desires, and is adapted to a world in which death reigns, and generation succeeds generation. This fact, although so trite and obvious as to appear scarcely worthy of being noticed, is of importance in treating of education ; because the human being, in so far as he resembles the inferior creatures, is capable of enjoying a life like theirs ; he has pleasure in eating,

drinking, sleeping, and exercising his limbs ; and one of the greatest obstacles to his improvement, is, that many of the race are contented with these enjoyments, and consider it painful to be compelled to seek higher sources of gratification. But to man's animal nature, have been added, by a bountiful Creator, moral sentiments and a vastly superior endowment of the reflecting faculties, which not only place him above all other creatures on earth, but constitute him a different being from any of them, a rational and accountable creature. These faculties are his highest and his best gifts, and the sources of his purest and intensest pleasures. They lead him directly to those important objects of his existence,—obedience to God, and love to his fellow-men. But this peculiarity attends them, that, while his animal faculties, which are necessary for his preservation, act powerfully of themselves, his moral and rational faculties require to be cultivated, exercised, and instructed, before they will yield their full harvest of enjoyment. In regard to them, education becomes of paramount importance.

The Creator has so arranged the external world, as to hold forth every possible inducement to man, to cultivate his higher powers, nay almost to constrain him to do so. The philosophic mind, in surveying the world as prepared for the reception of the human race, perceives in external nature a vast assemblage of stupendous powers, too great for the feeble hand of man entirely to control, but kindly subjected, within certain limits, to the influence of his will. Man is introduced on earth, apparently helpless and unprovided for as a homeless stranger ; but the soil, on which he treads, is endowed with a thousand capabilities of production, which require only to be excited by his intelligence, to yield him the most ample returns. The impetuous torrent rolls its waters to the main ; but

as it dashes over the mountain-cliff, the human hand is capable of withdrawing it from its course, and rendering its powers subservient to his will. Ocean extends over half the globe her liquid plain, in which no path appears, and the rude winds oft lift her waters to the sky ; but, there the skill of man may launch the strong-knit bark, spread forth the canvass to the gale, and make the trackless deep a highway through the world. In such a state of things, knowledge is truly power ; and it is obviously the interest of human beings to become acquainted with the constitution and relations of every object around them, that they may discover its capabilities of ministering to their own advantage. Further, where these physical energies are too great to be controlled, man has received intelligence by which he may observe their course, and accommodate his conduct to their influence. This capacity of adaptation is a valuable substitute for the power of regulating them by his will. Man cannot arrest the sun in its course, so as to avert the wintry storms, and cause perpetual spring to bloom around him ; but, by the proper exercise of his intelligence and corporeal energies, he is able to foresee the approach of bleak skies and rude winds, and to place himself in safety from their injurious effects. These powers of controlling Nature, and of accommodating his conduct to its course, are the direct results of his rational faculties ; and in proportion to their cultivation, is his sway extended. Man, while ignorant, is in a helpless condition. But let him put forth his proper human capacities, and he will then find himself invested with the power to rear, to build, to fabricate, and to store up provisions ; and, by availing himself of these resources, and accommodating his conduct to the course of Nature's laws, he will be able to smile in

safety, beside the cheerful hearth, when the elements maintain their fiercest war abroad.

Again : We are surrounded by countless beings, inferior and equal to ourselves, whose qualities yield us the greatest happiness, or bring upon us the bitterest evil, according as we affect them agreeably or disagreeably by our conduct. To draw forth all their excellencies, and cause them to diffuse joy around us ; to avoid touching the harsher springs of their constitution, and exciting painful discord around us ; it is indispensably necessary that we should know the nature of our fellows, and act with an habitual regard to the relations established by the Creator between them and ourselves.

Man, ignorant and uncivilized, is a ferocious, sensual, and superstitious savage. The external world affords some enjoyments to his animal feelings, but it confounds his moral and intellectual faculties. Nature exhibits to his mind, a mighty chaos of events, and a dread display of power. The chain of causation, appears too intricate to be unravelled, and the power too stupendous to be controlled. Order and beauty, indeed, occasionally gleam forth to his eye, from detached portions of creation, and seem to promise happiness and joy ; but more frequently, clouds and darkness brood over the scene, and disappoint his fondest expectations. Evil seems so mixed up with good, that he regards it either as its direct product, or its inseparable accompaniment. Nature is never contemplated with a clear perception of its adaptation to the purpose of promoting the true enjoyment of man, or with a well-founded confidence in the wisdom and benevolence of its Author. Man, when civilized and illuminated by knowledge, on the other hand, discovers in the objects and occurrences around him, a scheme beautifully arranged for the gratification of his whole powers, animal, moral,

and intellectual ; he recognises in himself the intelligent and accountable subject of an all-bountiful Creator, and in joy and gladness desires to study the Creator's works, to ascertain his laws, and to yield to them a steady and a willing obedience. Without undervaluing the pleasures of his animal nature, he tastes the higher, more refined, and more enduring delights, of his moral and intellectual capacities, and he then calls aloud for education as indispensable to the full enjoyment of his rational powers.

If this representation of the condition of the human being on earth, be correct, we perceive, clearly, the unspeakable advantage of applying our minds to gain knowledge, and of regulating our conduct according to rules drawn from acquired information. Our constitution and our position equally imply, that the grand object of our existence is, not to remain contented with the pleasures of mere animal life, but to take the dignified, and far more delightful, station, of moral, religious, and rational occupants of this lower world.

Education, then, means the process of acquiring that knowledge of our Creator, of ourselves, and of external nature, and the formation of those habits of enterprise and activity, which are indispensable to the evolution of our highest qualities, and to the performance of our parts, with intelligence and success, in such a scene as I have described.

These views may appear to many persons to be so clearly founded in reason, as to require neither proof nor illustration ; but there are others, who are little familiar with such contemplations, and to whom a few elucidations may be useful. As the latter are precisely those whom I desire to benefit, I solicit permission to enter into a few details, even at the risk of appearing tedious to the more enlightened among my hearers.

To understand correctly the constitution of the human mind, and its need of instruction, it is useful to compare it with that of the inferior animals. The lower creatures are destined to act chiefly from instinct ; and instinct is a tendency to act in a certain way, planted in the animal by the Creator, without its knowing the ultimate design, or the nature of the means by which its aim is to be accomplished. A bee, for example, constructs its cell in conformity with the most rigid principles of mathematical science, according to which it is necessary that the fabric should possess a particular form, and be joined to other cells at a particular angle, in preference to all others, in order to give it the greatest capacity and strength, with the least possible expenditure of material. The creature has no knowledge of the principles of mathematics, such as man possesses ; but it acts in accordance with them, by an impulse obviously planted in it by the Author of its being. Man is not directed by unerring impulses like this. Before he could construct a similar fabric, with success, it would be necessary for him, by means of experiment and observation, to become acquainted with the nature of the materials to be employed, and to form a clear conception of the whole design, previous to the commencement of his labor. A mother, among the inferior animals, is impelled by pure instinct to administer to her offspring that kind of protection, food, and training, which its nature and circumstances require : and so admirably does she fulfil this duty, even at the first call, that human sagacity could not improve, or rather could not at all equal, her treatment. Now these animals proceed without consciousness of the admirable wisdom displayed in their actions ;—because they do not act from knowledge and design. It is certain, that wherever design appears, there must be intelligence ; yet the

wisdom resides not in the animals, but in their author. The Creator, therefore, in constituting the bee, or the beaver, possessed perfect knowledge of the external circumstances in which He was about to place it, and of its relations, when so placed, to all other creatures and objects ; and conferred on it powers or instincts of action, admirably adapted to secure its preservation and enjoyment. Hence, when enlightened men contemplate the habits and powers of animals, and compare them with their condition, they perceive wisdom and benevolence conspicuously displayed by the Creator.

Man, also, has received instincts which resemble those of the lower animals, such as the love of sex, of offspring, of society, and of praise, the instinct of resentment, and many others ; by the exercise of which, as I have said, he may maintain his purely animal existence, with very little aid from education. But he is distinguished from the inferior creatures, 1st. By the possession of moral sentiments—such as the love of justice, of piety, of universal happiness, and, 2dly. By great superiority in the reflecting faculties, fitted to acquire knowledge of the modes of action of external objects, and of their effects.

These two classes of faculties, render man a very different being from the inferior creatures. The function of reason being to acquire a knowledge of modes of action and effects, Man is not prompted to follow the most beneficial mode of promoting his own happiness in the direct and unreflecting manner in which the inferior creatures are led to that end. The human female, for example, devoid of all instruction and experience, will feel as lively a joy at the birth of a child, and as warm an attachment towards it, and will as ardently desire its welfare, as the most devoted among the inferior creatures ; because she

possesses the same innate love of offspring, which distinguishes them. But in her condition of ignorance, she will not administer towards it the same perfect treatment, with reference to its wants, as the mother in the lower scale ; and for this reason, that, in the animal, the instinct is directed to its proper mode of gratification by the Author of Nature : He prompts *her* to do exactly what His wisdom knows to be necessary ; whereas, in the human being, the propensity is left to the guidance of reason. Woman is commanded to exert her intellect in studying the constitution, bodily and mental, of herself and her offspring, in order that she may rear it with success in all the stages of its existence, while it needs her assistance ; and if she shall neglect to perform this duty, she and her children will suffer a severe penalty, in being exposed to the consequences of erroneous treatment.

Every day affords examples of the truth of this remark. A young lady, when in infancy, lost both parents ; but sufficient property was left to her to enable her to attain what is generally called a good education. She was reared in a fashionable boarding-school, and in due time was respectably married. When her first child was born, she was extremely perplexed. Never having lived where there were infants in the family, she had had no opportunity of learning *by experience* how to rear such tender beings ; and never having been taught any thing of the structure, or functions, or wants, of the human infant, she possessed no principles, by which she could judge of the treatment proper for her child. In her anxiety to do it justice, she asked advice of every female visiter, and was speedily bewildered amidst the incongruous recommendations which she received. Unable to decide for herself, she followed now one method, and then another, till, in a few weeks, the unhappy infant died. This is an ex-



treme case; but an intelligent female friend, who communicated it to me, had no doubt that the child perished through lack of knowledge. In 1838, the total number of deaths in Edinburgh, was 7,533, not including still-births. The deaths under five years of age, also excluding still-births, amounted to 3,835, more than one half of the whole. That this distressing mortality of children arises, to a considerable extent, from mismanagement, is unquestionable. In Philadelphia, also, the mortality of the young is very great, and Dr. Parrish, a physician of great experience, ascribes much of it directly to maltreatment.

“ In the prevention,” says he, “ of *Cholera Infantum*, (or the summer complaint,) much may be expected from a proper attention to the lodging of children. Many parents have a great dread of the night air; and exclude it from their chambers, as sedulously as if it were infected with poison. But in guarding their children from taking cold, they expose them to a much greater danger. Observe their mode of treatment. The doors and windows are carefully closed; the child is placed in a feather-bed, with his parents on each side, and almost smothered with the bed-clothes. Perhaps other children are lodged in the same apartment; and thus the delicate system of the infant is exposed to the debilitating influence of great heat and stagnant air, combined with the effluvia, which, in such a situation, must be abundantly generated. Simply to enter such a room in the morning, is almost sufficient to sicken a healthy individual; how much more injurious must be its effects upon the lodgers themselves. Examine, in the morning, a child who has passed the night thus confined. You will find him limber as a rag, exhausted by perspiration, wholly destitute of animation, without appetite, and on the very verge of

cholera. I should recommend an entirely different plan of management. Instead of a feather-bed, the child should be placed on a hard mattress, or on blankets, folded and laid upon the floor. The covering should be light but comfortable. The doors and windows should be open, so that fresh air, that *pabulum vitæ* without which health cannot be sustained, may be freely admitted. Thus treated, instead of the feeble and sickly appearance before-mentioned, he will present a lively countenance, with all that activity of motion, and enjoyment of existence, which are natural to his age, and afford the surest criterion of vigorous health. Experience has fully convinced me of the great importance of attention to the lodging of children, as a preventive measure; and this renders me desirous of impressing upon the profession generally, the truth of my own convictions on the subject !”\*

Many persons are not aware that human feelings are more blind than those of the lower animals, and that they lead to worse results when not directed by reason. They imagine that if they possess a feeling strongly, such as the love of offspring, or the love of God, they cannot err in the mode of gratifying it; consequently, they act with all the energy of impulse, and all the blindness of infatuation. A mighty change will be effected in human conduct, when the people at large become acquainted with the indispensable necessity of reason to the proper direction of their feelings, and with the fact that knowledge is the grand element, without which reason cannot be efficiently exerted. Man, therefore, being an improvable being, has been furnished with reason, and been left to discover, by the exercise of it, his own nature, the nature

\* The North American Medical and Surgical Journal, vol. ii. p. 70.

‘ Parrish on Cholera Infantum.’

of external objects, and their effects, and to adapt the one to the other in his temporal sphere for his own advantage. When he shall do so, and fulfil also his moral and religious duties, he will assume his proper station as a rational being. The only limit to this proposition is, that each of his faculties, bodily and mental, and every external object, have received a definite constitution, and are regulated by precise laws, so that limits have been set to human aberration, and also to human attainments : but, within these limits, vast materials for producing happiness, by harmonious and wise adaptations, or misery, by discordant and foolish combinations, exist ; and these must be discovered and employed by man, before he can reach the full earthly enjoyment of which his nature is susceptible.

I do not pretend to predicate *what* degree of perfection man is capable of attaining on earth by these means. Looking at the condition of the inferior animals, I should not expect optimism ; because disease, death, cold, heat, and famine, are incident to them all ; but, on dispassionately comparing the enjoyments of the inferior creatures, in relation to their natures, with the past and present enjoyments of the human race, in relation to their superior capacities, I fear that man does not surpass them to the extent which he ought to do, if he made a proper use of the means fairly in his power of promoting his own happiness. Comparing the civilized Christian inhabitants of modern Europe, with the ignorant, ferocious, filthy, and helpless savages of New South Wales, we perceive a vast advance ; but I do not believe that the limits of attainable perfection have yet been reached even by the best of Europe's sons.\* All, therefore, that I venture to

\* A very instructive exposition of the evils arising from the improper physical education of the young, and of the means of substituting a

hope for is, that man, by the proper employment of the means presented to him, may arrive at last at a condition of enjoyment of his mortal existence, as great, in relation to his rational nature, as that of the lower animals is in relation to their natures. This is no more than saying, that the Creator has made man as perfect as a reasonable being, as He has made the lower of animals perfect as instinctive creatures.

I trust, then, that most of you will now concur with me in thinking, that if man, by his constitution, be an intelligent, moral, religious, and, therefore, an improvable being, he must be taught knowledge, and trained to apply it, as the first stage in his progress towards enjoyment. In other words, he must be educated.

Let us inquire, then, into the present condition of education, and afterwards consider how it may be improved.

Suppose a young man to receive what is by many held to be a sufficiently good education—to have been taught reading, writing, arithmetic, Latin, and a smattering of Greek—and to be then sent into the world,—what will be the amount of his attainments? The acquirements just mentioned appear considerable, and I am far from undervaluing them. They are the *instruments*, by the diligent use of which much useful and practical *knowledge* may be attained; but in themselves they do not constitute such knowledge. A few observations are necessary to elucidate this proposition.

*First*, In regard to language in general, and what are termed “the learned languages” in particular, I remark, that we may have an extensive knowledge of things, and

better treatment, will be found in ‘Health and Beauty, an Examination of the Laws of Growth and Exercise, by John Bell, M. D.’ Philadelphia, 1838.

few words by which to express it. Thus, a self-taught artisan often advances far into the principles and practice of his art before he has read books, and become acquainted with terms to designate the objects and operations with which he is familiar. He has more ideas than words ; and this is a great evil, for he cannot communicate his knowledge, or receive instruction from others by books. Other individuals, however, have more words than ideas ; which also is very inconvenient ; for they have the means of communicating knowledge, but lack knowledge to communicate ; they are great scholars, but can teach mankind no practical art or science.

Words are mere arbitrary signs for expressing feelings and ideas in the mind ; and the best condition of an individual is to possess ample ideas, and an equally extensive stock of words. It is better, however, to have ten ideas, and only ten words to express them, although all the words should belong to one language, than to have only *one* idea, and *ten* words in as many *different* languages for communicating it. For example, a monk, who has only seen a horse passing by the window of his cell, may know that this animal is named in Greek, ἵππος, (hippos ; ) in Latin, *equus* ; in English, *a horse* ; in French, *cheval* ; in Italian, *cavallo* ; in German *pferd* ; and, by some persons, he may be supposed to be, in consequence, highly learned. He is indeed considerably learned, but unfortunately not on the subject of the horse itself, but only on the names by which it is designated in different countries. His stock of REAL knowledge would be only that which he had picked up by looking at the creature through the window, and would not be in the slightest degree increased by the acquirement of these *six* words to express the *name* of the animal. His origi-

nal NOTION of a horse, whatever it was, would continue unextended by all these additions to his knowledge of its names. The person of a man is neither stronger, taller, nor more graceful, because he possesses six suits of clothes, than it would be if he had only one ; and so it is with the mind. A youth, trained in a stable-yard, whose attention had been directed to the various qualities necessary to constitute a good hackney, hunter, or race-horse, and who knew its name only in his mother-tongue, would be far superior, as a practical judge of horses, to the monk. He would excel him in selecting, employing, managing, and rearing horses. He would possess ideas about the animal itself—would know what points were good and what bad about it ; how it would work in different situations ; how it would thrive on particular kinds of food ; and in what manner it ought habitually to be treated, so as to obtain the most complete development of its natural powers. This is *practical knowledge* : acquaintance with words is *learning*. Hitherto education has been conducted too much on the principle of looking at the world only out of the window of the school and the college, and teaching the names of the beings and things therein contained, in a variety of languages, to the neglect of the study of the beings and things themselves ; whereas man, as a creature destined for action, fitted to control nature to some extent, and, beyond this, left to accommodate his conduct to its course, requires positive knowledge of creation, its elements and laws, and has little use for words which go beyond the stock of his ideas.

Language, however, is not to be depreciated or despised. Man is obviously formed to live in society ; his happiness is vastly increased by cooperation and interchange of ideas with his fellows ; and language, oral and

written, is his natural medium of communication. It is of first-rate importance to every individual, therefore, to possess not only words for all his ideas and emotions, but such expertness in using them in speech and writing, as may enable him readily and successfully to convey to other minds the precise impressions existing in his own. Keeping in view, therefore, that notions of things are of first-rate utility, and that language is of value only as a means of communicating what we know and feel, we may proceed to inquire into the value of Greek and Latin as elements of education. The history of their introduction into schools, and of the circumstances which led to their past high estimation, merits our attention.

The Greeks and Romans were the earliest nations in Europe who attained to civilization ; in other words, they were the first who so far cultivated their mental faculties as to acquire numerous and tolerably precise ideas of government, laws, morals, intellectual philosophy, and the fine arts. In consequence of their minds possessing these ideas, their languages contained terms to express them. In the fourth and fifth centuries, the Roman empire was overrun by ignorant barbarians from the north of Europe, whose mental powers, from not having been cultivated, had not reached the conceptions now alluded to, and whose languages, in consequence, were as barren as their thoughts. A long night of darkness prevailed over Europe, until at length civilization again dawned where it had last set—in Italy. The cities of that country, situated under a genial climate, and surrounded by a fertile soil, had, as early as the twelfth and thirteenth centuries, made considerable progress in arts and manufactures ; wealth flowed in upon them ; this produced leisure and a desire for refined enjoyment, whence a taste for literature gradually arose.

The manuscripts of Greece and Rome had long slumbered in the cells of monastic institutions, and many of them had been erased to give place to monkish legends ; but now they were ardently disinterred. When recovered and understood, they were found to contain more sublime and elegant poetry,—more refined yet nervous eloquence,—more brilliant, pointed, and ingenious wit, with profounder and juster views on law, criticism, and philosophy,—than had been known or heard of subsequently to the subversion of civilization ; and all these treasures, too, embodied in languages so rich, discriminative, and refined, that Europe, in addition to this accession of knowledge, was at once furnished with exquisite vehicles of thought, without the labor of invention.

In these circumstances, Greek and Latin naturally became objects of intense study among all men who aspired to superior intelligence. There was great good sense in this direction of their mental energies ; because, at that time, and in their situation, these languages really unlocked to them the richest intellectual stores existing in the world, and put them in possession also of an instrument for communicating their thoughts, greatly surpassing, in delicacy and power, any that they could have obtained by their own invention, or found in the literature of their native countries.

For these reasons, colleges, schools, bursaries, and other institutions, were established, for teaching and cultivating the Greek and Latin languages, and they obtained the appellation of “ humane literature,” *LITERÆ HUMANIORES* : eminence in them became the passport to fame ; and a person deeply conversant with them was dignified with the title of “ a learned man.”

In the course of time, however, the nations of Europe, aided by the invention of printing, and, latterly, by stu-



pendous discoveries in science and the arts, as well as by the wide diffusion of Christianity among the people, far outstripped the Greeks and Romans in their most useful attainments. The Italians, French, English, and Germans, made gigantic strides in knowledge, morality, and religion ; and their languages, by a law of the human constitution, kept pace with the multiplication of their emotions and ideas. England could long ago boast of a BACON, a SHAKSPEARE, a MILTON, a NEWTON, and a LOCKE ; and she is now able to exhibit an additional list of names, so splendid and extensive as almost to defy repetition, of men who have embodied in her language thoughts and inventions so profound, admirable, and useful, that the philosophy, the science, and the arts, of the ancient world sink into comparative insignificance before them.

This change of circumstances has clearly altered the relative value and importance of Greek and Latin. (There is now no *knowledge* relating to the physical and moral worlds contained in these languages, which does not exist clearly expressed in English ; and there is no mode of feeling or of thought subservient to the practical purposes of life, that may not be as forcibly and elegantly clothed in our native language as in them.) Human institutions and practices, however, often long survive the causes that gave them birth ; and from five to seven precious years of our lives in youth are still dedicated to the study of the learned languages, as if all their original importance remained.

At the time when public schools, such as the High School of Edinburgh and the grammar-schools of the different burghs of Scotland, were instituted, there was no science that could benefit the people. These seminaries, therefore, as schools of preparatory instruction,

were nearly coextensive with the universities. In these primary schools, the pupils were taught the elements of Greek and Latin ; and in the colleges the same studies were carried forward to the highest point which the time and capacity of the scholar enabled him to reach. In the progress of years, however, arts and sciences have been discovered. In Scotland, the Universities have to some extent kept pace with the growing knowledge of the age. In Edinburgh College, lectures are now delivered on the physical sciences, and on most of the branches of medicine. In short, the knowledge of Nature in all her departments is taught ; Greek and Latin constituting only departments of the general system of tuition. If our primary schools had kept pace with this improvement, all would have been well. If we had followed the spirit of practical wisdom manifested by our ancestors, and extended our elementary instruction in proportion to the enlargement of our university education, the knowledge of the people would have been far superior to what it actually is. But, by a strange anomaly, our primary schools have, till within these few years, been allowed to stand still, while the universities have advanced. These schools have continued to teach little else than English, Greek, and Latin ; and the consequences have been baneful. The great mass of the people of the middle and lower ranks, having been taught exclusively at these and the parish schools, have been led to believe languages to be practical knowledge ; and they have been defrauded of the opportunity of acquiring elementary instruction in the arts, sciences, and other departments of useful knowledge. They have wasted in studying—or in attempting to study—Greek and Latin, the only time which their pressing occupations left at their command for obtaining information. They have been sent into the world abso-

lutely ignorant of the vast store of moral and intellectual instruction presented by the works of the Creator. The higher orders, again, who have entered the universities, have found themselves obliged to commence with the very rudiments of the sciences, after having spent from five to seven years in what they were led to believe were preparatory studies. In the great public hospitals, the system of teaching chiefly languages, exhibits its fruits in a very tangible form. While children living in the houses of their parents, learn something of real life by intercourse with society, perusing newspapers, and observing passing occurrences, those shut up within the walls of public institutions, and excluded from these sources of information, present at the end of their imprisonment, a lamentable spectacle of ignorance. I have been informed, by men engaged in practical business, who have received apprentices from public charitable institutions, that the boys, on their entrance into active life, appear as if they had just dropped from the moon. Every thing is strange to them; and very little of what had been previously taught to them, is applicable, in their new condition, to useful purposes. What I contend for is, that common sense should be employed in selecting studies in the primary schools, as well as in the universities; and that, in these seminaries,\* the elements of

\* Since these lectures were written, a great improvement has been introduced into the Regulations of GEORGE HERIOT'S Hospital, in Edinburgh. On 1st November, 1833, it was enacted by the Governors, that the branches of education for the senior boys "shall be such as may be interesting to *all* these boys, whatever may be their destination in afterlife;" and among the branches enumerated are, "the first principles of Natural History and Mechanical Philosophy." In Oct. 1836, I saw preparations in progress in GEORGE GORDON'S Hospital, in Aberdeen for teaching the elements of natural science to the boys educated in that institution.

useful knowledge, in addition to languages, should be taught.

I recollect the impression made on my own mind, when I was a child, by my school books. They were 'Barry's Collection,' and 'The Beauties of Eminent Writers.' These were composed of 'Androcles and the Lion,' extracts from Shakspeare, Milton, Thomson, and other poets; from the histories of Greece and Rome; the speeches of the great Chatham and Edmund Burke, &c.; all admirable specimens of English composition, and of intellectual acumen, but I often remarked, at the time, that there was not one line, in all my books put together, dedicated to the description, or explanation, of anything that I had either heard, or seen, or felt, in my daily life.

At home, nobody repeated Shakspeare, nor recited Chatham's speeches; and even 'Androcles and the Lion' were not heard of, except in the nursery. The World of the school, was as different from the World of life, as if it had related to beings in another planet. At the same time, I felt an insatiable curiosity to obtain more ample information concerning things which were spoken about at home, and which I saw and handled; but could find none. This circumstance, made a deep impression on me at the time, and I have never ceased to regard it as important. It embodies a principle instructive to all who are engaged in the work of education. It shows that there was, and I fear, in too many instances, there still is, a huge gulf existing between the infant mind and its means of obtaining real and profitable instruction. It should be an object with teachers to fill up this void with useful knowledge. After I became acquainted with the philosophy with which my name is now generally connected, I saw the cause of this barren wil-

derness in education. The Creator has constituted the external world in admirable adaptation to the human faculties, but natural science and accurate knowledge of things that exist, and of their influences on human happiness, had not yet reached our schools. It now appears to me that the elementary principles of all the natural sciences, when contemplated in their primitive forms by superior minds, are simple, and that they constitute the native food of intellect. I include in these sciences, the knowledge of man's physical, moral, and intellectual nature, and the relations subsisting between them and external objects and beings.

In framing books for schools, their authors will do well to ask themselves, as each volume is presented, "What does this book teach the people to do?" It is good to know; but it is better still to do. The history of the past, is not a guide to the future, in the present state of civilized society. We are in a state of transition, and it is of greater importance to furnish sound, practical principles for the future, than to load the memory with a minute knowledge of the past. The pages of history are useful, chiefly as charts, indicating the shoals on which human happiness has been shipwrecked. We must chalk out new and better lines for our future movements. It is extremely difficult to frame books embodying scientific principles, and applying them to practical purposes; but this object must be accomplished, before truly valuable school books will be realized.

In surveying, then, the prevalent practice of confining education in primary schools chiefly to languages, we observe that the following consequences ensue. *First*, The intellectual faculties desire *knowledge* as their natural food, and it is only after a considerable stock of ideas has been acquired, and many emotions experienced, that

the value of words, as a means of expressing them, can be appreciated. By the common selection of studies, however, little knowledge of *things* is communicated, and children are compelled to proceed at once to learn difficult, copious, and obsolete languages,—to burden their memories with words corresponding to which they have no ideas. This course of study being an outrage upon Nature,—tedium, disgust, and suffering, invade the youthful mind. As a means of conquering aversion, severe discipline used to be, and occasionally still is, resorted to : This being felt to be unjust, rouses the lower feelings and debases the higher sentiments,—while the intellect is starved and impaired by dealing habitually with sounds to which no clear conceptions are attached.

*Secondly*, Under this system, children make no substantial progress in any useful acquirement. Nine out of ten of them drawl away the years of their allotted penance, and, within a brief space after its close, forget every syllable which they had learned with so much labor and pain ; and even the tenth, who, from a higher natural talent for languages, perhaps distinguished himself at school, does not, on entering the counting-room or workshop, always find himself as superior to his competitors in practical business as in classical attainments.

If the individual select commerce or manufactures as his occupation for life, the time devoted to the dead languages is positively misapplied. It is a fact, quite notorious, that nine-tenths of the children, educated in a commercial town, do not follow professions for which Greek and Latin are indispensable ; and hence the time and money expended, by at least this proportion of pupils, are most unprofitably bestowed. Indeed there is a great delusion in the public mind, in regard to the necessity of Greek, even for the medical profession. Professor

Christison, when examined some years ago before the Royal Commission, which visited the University of Edinburgh, stated, that at the High School he had been dux of the Greek Class, and at the College had gained a prize for knowledge of that language, and was naturally fond of it ; but that, from the time when he began to study medicine, he found his attention so fully occupied by substantial science, that he had scarcely opened a Greek book ; while he had been obliged to study French and German for the sake of the medical information to which they were the means of access.\*

\* I heard the statement in the text made some years ago by a friend, and noted it at the time ; but, before publishing it, I wrote to Professor Christison, mentioning my desire to ascertain if it were correct, and he kindly sent me the following letter :—

“TO GEORGE COMBE, Esq. 23, Charlotte Square.

“MY DEAR SIR,—The evidence before the University Commissioners, was never published, though printed ; nor have I seen that part of my evidence to which you refer since the time it was given. But, to the best of my recollection, I stated in regard to Greek—very much as you have put it in your letter—that, in my youth, I had cultivated it for about five years, and had made some proficiency in it, being fond of the language ; but that I had since found so little occasion to put it to practical use, although pursuing the various branches of my profession as objects of scientific study, that I did not believe I could at that moment, translate a single passage of Greek which might be placed before me. Such is certainly still the state of matters with me and my Greek ; and I had occasion very lately, in our discussions in the *Senatus Academicus* regarding the propriety of preliminary general education for Doctors of Medicine, to renew my objections to Greek as one of them, in the terms now mentioned. I am almost certain that, in my evidence before the Commission, I also added, that if any other language but Latin were to be required, I should infinitely prefer placing French, and even German too, in our *Statuta*.

“My opinion, regarding Greek, shortly is, that it is a most desirable branch of literature for imparting general knowledge and cultivation to the mind ; but, for direct professional purposes, is of so little conse-

It is erroneous to say that Greek and Latin are indispensably necessary to enable a boy to understand his own language. This must be the case only where no adequate pains have been bestowed by teachers to convey fully the meaning of English expressions. All words are mere arbitrary sounds, and, in itself, a sound invented by an Englishman is as capable of being rendered intelligible by proper definition, as one first suggested by a Greek or Roman. A great proportion of the words which compose the English language are derived from the Saxon ; yet few persons think a knowledge of that language neces-

quence, both in itself and likewise as compared with modern languages and the exact sciences, that, considering the great augmentation of the branches of proper medical study in these days, the pursuit of it, as a compulsory measure for medical students, is a mere waste of time and labor.

“ Believe me yours, very truly,

“ R. CHRISTISON.

“ *November 23, 1833.*

“ 3, GREAT STUART STREET.

“ P. S.—I have no objection to your making any public use of my sentiments which you may desire ; for I am sure they coincide with those entertained by most qualified judges whom I have conversed with on the subject ; and I am most anxious at the present moment—when the matter of medical education is about to be taken up by Government,—that unprofessional men of common sense be not led away by the natural partiality of classical scholars for their favorite pursuit, or by the recollection, that, in former times, when medicine and the medical sciences were in small compass, and the student had therefore ample time for collateral studies, Greek was naturally enough considered a necessary branch of knowledge, because it was one of the almost indispensable tests of a man of cultivated mind or a learned profession.”

I consider the cause of rational education much benefited by the testimony of Professor Christison in the prefixed letter. It is highly characteristic of that bold, independent, and practical understanding, which has raised him, at an early age, to a distinguished place in the University of his native city.



sary for the due understanding of their native tongue. The grand requisites to the right use of speech are two,—clear notions and accurate definitions of the words employed to express them. The *former* will be best attained by studying *things* and their relations, and the *latter* by a careful exposition of our mother-tongue, by teachers who know scientifically both the things signified and the genius of the language. The derivation of words is not always an index to their true signification : *artery* means literally air-vessel, yet it circulates blood ; physiology is derived from *φύσις*, nature, and *λογος*, discourse,—yet in English it is used to designate only the doctrine of animal and vegetable functions. In teaching etymology, therefore, we must often guard the student against the errors into which it would lead him ; so that the difficulty of his understanding his native tongue, is to that extent increased by his studies in Greek and Latin.

Various obvious reasons exist why so little of English is understood by those who learn *it* and no other language or science at school. Owing to the deficiency of their own education, teachers themselves, in general, do not possess distinct knowledge of the things signified by the sounds which they communicate ; and, from not understanding the ideas, they have it not in their power to define words accurately. Hence they cannot, and do not, bring together before the minds of their pupils, clear conceptions of the things signified, and of the signs ; without the combination of which the right use of speech is impracticable. Further, schoolmasters, in general, communicate only the *sounds of words*, and the *abstract* rules of grammar ; but this is not teaching *a language*. Teaching a language implies unfolding its structure, idiom, and power—a task which requires extensive information and much reflection.

A professor of English, therefore, would be more useful to nine out of ten of the pupils of any academy for the education of the industrious classes, than professors of Greek and Latin ; and it is only after English has been taught in this, or in such other way as may be best adapted to the human understanding, and without success, that the conclusion ought to be drawn that it cannot be understood sufficiently for all useful and ornamental purposes, without a previous knowledge of Greek and Latin.

The extensive study of Greek and Latin by learned men, has led to the practice of compounding many new words out of Greek roots ; and as Chemistry, Geology, and other branches of Natural History, are advancing with cheering rapidity, multitudes of purely Greek words are added to our language every year, and the uninitiated suffer great inconvenience from not understanding them. This evil, I believe, is to a great extent unavoidable. The things described are new in science, and new names are needed by which to designate them. Uninstructed readers are unacquainted with the *objects*, as well as with their names. If the objects were studied, which can be done only by observation, no difficulty would be found in comprehending the words, although they be derived from Greek and Latin roots. It would be extremely difficult to give to names compounded of English terms, that scientific precision which is attainable by using Greek and Latin. Explanatory dictionaries, however, of words, common and scientific, borrowed from these languages, have been published ; so that no one is compelled to study ancient tongues for six or seven years, for the sake of understanding the derivations of a few hundreds of scientific terms. In a very useful work, by Dr. R. Harrison Black, entitled, ‘ The Student’s Manu-

al,' (published by Longman & Co.,) the Greek roots are printed in the Greek character, and also in the Roman, by which means unlearned readers may become acquainted with the Greek letters, and many common Greek words, almost without an effort.

It has often been observed, that the Greeks themselves studied no language except their own, and yet attained to exquisite delicacy and dexterity in the use of it; and why may not the English do as much? The objection, that Greek is a primitive, and English a derivative tongue, is met by the answer, that every word is merely a sound indicative of an idea or an emotion; and that it makes no difference in the possibility of comprehending the meaning of it, whether the sound was invented by the English themselves, or borrowed by them from the Greeks or Romans. In learning the meaning of Greek words, the student must connect the thing signified directly with the expression, because he has no etymology to render the Greek intelligible. But if he can comprehend Greek by merely connecting the idea with the word, why may he not learn to understand English by a similar process? It may be added, that some of the most eminent of our English authors, such as Shakspeare, Cobbett, Burns, and a whole host of female writers, had little or no acquaintance with the dead languages; and that there are not wanting, instances of learned critics, like Bentley, whose classical knowledge did not enable them to express themselves in their native tongue, with tolerable correctness, gracefulness, and ease.

We have the testimony of several of the greatest masters in English literature against the existing practice.

"It is deplorable," says Cowley in his *Essays*, "to consider the loss which children make of their time at most schools, employing, or rather casting away, six or

seven years in the learning of words only, and that very imperfectly."

Locke, in his treatise on Education, asks: "Would not a Chinese, who took notice of our way of breeding, be apt to imagine that all our young gentlemen were designed to be teachers and professors of the dead languages of foreign countries, and not to be men of business in their own?"

Gibbon, the historian, remarks, that "a finished scholar may emerge from the head of Westminster or Eton, in total ignorance of the business and conversation of English gentlemen in the latter end of the eighteenth century."

Mr. Moore, who cites these authorities in his notices of the Life of Lord Byron,\* adds, that that gifted poet was a miserable Greek and Latin scholar while he attended Harrow School; that he hated the task of learning these languages; and that he acquired his astonishing copiousness, flexibility, and beauty of style, by extensive miscellaneous reading in his native tongue. Milton says, "Though a linguist should pride himself to have all the tongues that Babel cleft this world into, yet, if he have not studied the *solid things* in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man as any yeoman or tradesman competently wise in his mother dialect only." And Dr. Adam Smith observes, that "it seldom happens that a man, in any part of his life, derives any conveniency or advantage from some of the most laborious and troublesome parts of his education."—*Wealth of Nations*, B. v. c. 1.

Education, then, consisting chiefly of languages, leaves the mind of the pupil ignorant of things, ignorant of men, and ignorant of the constitution of the social system in

\* Vol. i. pp. 89, 90. Murray, 1832.

which he is destined to move. He is trained in abstractions, and among shadows ; and when he enters practical life, he finds that his real education is only at its commencement.

Education consisting of a knowledge of philosophy, and science, on the contrary, produces an early and a deep conviction that man is made for action ; that he is placed among agents, which he must direct, or to which he must accommodate his conduct ; that every thing in the world is regulated by laws instituted by the Creator ; that all objects which exist—animate and inanimate—have received definite qualities and constitutions, and that good arises from their proper, and evil from their improper, application. This education makes known what these qualities are. It invigorates the understanding, and gives boldness and independence to the sentiments.

The practical effect of the two modes of instruction, must be widely different.

I have heard the practice of teaching the ancient languages as the chief branches of education, defended on the ground, that the difficulties which the study of them presents,—afford an admirable means of training the intellectual faculties to contend with obstacles, and that discipline, more than knowledge, constitutes the practical value of education. In answer to this argument, I observe, that the Creator, in bestowing on us faculties fitted to become acquainted with external nature, and in rendering us happy or miserable in proportion to the extent to which we place ourselves in accordance with his laws, must certainly have adapted these objects to our mental constitution, in such a manner, that the study of them, while it carries positive advantages in its train, should also beneficially exercise the faculties themselves by means of which it is conducted. Accordingly, it appears to me

that the power of observation, on the strength and acuteness of which the talent for practical business greatly depends, will be better disciplined by studying the forms, colors, magnitudes, and arrangements of the different parts of minerals, earths, metals, salts, plants, and animals, than by learning merely the distinctions between modes, tenses, genders, and cases, in two or three obsolete languages ; and that the reflecting faculties will be better trained to vigor by investigating the active phenomena presented by the objects comprehended in the sciences of Chemistry, Natural Philosophy, and Physiology, than by contending with the subtilities of Greek and Roman authors. In the one case, the faculties are employed directly on the objects suited to them in creation :—in the other, they are occupied with artificial inventions, in one particular department of intellect alone. In the one case, every item of knowledge gained, possesses intrinsic value ; in the other, the ideas acquired, are of slender utility, beyond the discipline which the study of them affords. The study of Nature, then, calls into activity a much greater *amount* of *thought* than does the study of languages.

It has been said, also, in defence of Greek and Latin, as the substance of education, that these languages become the basis, on which a vast fabric of useful knowledge may be reared. The pupils, we are told, are instructed in the geography and history, and in the animal and mineral productions, of the countries in which the events, recorded in the ancient classics, occurred. This, however, is an acknowledgement that these branches of information are valuable in themselves ; and then, the only remaining question is, whether natural science, history, and geography, will be best taught as mere appendages to Greek and Roman literature ; or whether they be not entitled to

take the lead, on account of their own inherent excellence, and of their superior adaptation to gratify and improve the mental faculties. Those who maintain that they are not, give the preference to the artificial and abstract products of the human intellect, in ages when science was scarcely known, over the ever-enduring and perfect works of the Creator, as strengthening studies for the youthful mind !

Again, it is argued by the patrons of a Greek and Latin education, that acquiring knowledge of the names of alkalies, acids, earths, salts, minerals, plants, and animals, is, after all, an exercise of mere verbal memory,—a species of parrot-practice, calculated to puff up the youthful mind with conceit, and in itself far less useful than a real acquaintance with the principles of universal grammar, and with the literature of two of the greatest nations of antiquity. The fundamental proposition, in this argument, is at variance with fact. In a proper course of instruction in science, the pupil is never taught the name of any object, until he shall have been made acquainted with the object itself. And, in regard to strengthening the judgment, it appears to me, that an individual, who is trained to habits of accurate observation, who learns early that the objects of creation are agents acting and reacting on each other and on himself ; that they operate according to regular laws ; and that man may control, direct, and apply some of them by his own energy and skill, while, to the influence of others, he must accommodate his conduct ;—is much better prepared to enter life with a vigorous and disciplined understanding, than one who has spent five, six, or seven years, chiefly in studying the abstractions, and conquering the difficulties, of the Greek and Roman classics. It is, no doubt, useful to train the youthful mind to contend with and surmount difficulties ; but these are presented in abundance, and in the most

beneficial form, in the study of Nature. In exercising the eyes, we would not teach a child to squint, because this is more difficult than looking straight ; and in exercising the legs, we would not direct the pupil to walk chiefly on his tiptoes, because this demands greater vigor in the muscles than walking on the full sole of the foot ; yet it would be equally rational to do so, as to select the intricacies of Greek and Latin grammar as mental exercises, on account of the difficulties which they present to the understanding. No man, seriously engaged in the study of science, ever found his path too flowery, or the obstacles to his progress too few. Yet the difficulties which he encounters are stimulating, because the scheme of creation is adapted to the constitution of his understanding. He feels so greatly benefited and so highly delighted, with whatever knowledge he has gained, that the labor of adding to his stores, although severe, is pleasant. He is cheered, also, by the consciousness that his powers of investigation increase in proportion to his attainments and perseverance.

The greatest evils attending a purely classical education, appear to me to be the ignorance in which it leaves the pupil of the objects, agents, and relations existing in nature and social life, and the extent to which, in consequence, his mind is exposed to the influence of prejudice and superstition.

One unspeakable advantage of communicating instruction in natural truths, to youth, is, that it furnishes them with a solid basis on which to found their judgements. Under the old system, all was conflicting opinion ; authority stood against authority ; and in the whole phases of human life, only inexplicable intricacy and inscrutable revolutions could be detected. The causes of good and evil did not appear, and the consequences of actions were



scarcely traceable. A people, whose education leaves them in such a condition, must, to a great extent, be exposed to the seductions of passion, to be misled by imperfect views of their own interests, and by the delusions of an excited imagination, hurrying them into wild speculations and impracticable adventures. An education in natural truth, steadies the whole mind, and places passion, imagination, and ambition under the guidance of reason. America needs an education of this kind, because she has no controlling principle in her institutions, except the morality and intelligence of the majority of her people.

The undue preference long given to Greek and Roman literature in education, is rapidly declining, and in this we recognise the indisputable progress of reason. From time to time, however, attempts are made by the patrons of these studies to maintain their importance ; and among the numerous fallacies by which they are defended, one of the latest has been the argument that Greek and Roman literature constitutes the true education of a gentleman. It is said, that the ancient classics not only improve the memory, expand the intellect, and sharpen the judgement, but that they communicate to the mind that nameless grace—that sympathy with all that is delicate and exalted—that high-toned dignity and vigor, which must be acquired by all those individuals of humble parentage, who, by the exercise of their talents and their virtues, aspire to obtain an exalted station. Seminaries for Greek and Latin, therefore, it is said, ought to be supported, as the places in which embryo gentlemen may meet and associate with embryo gentlemen, while their minds are yet delicate and their manners uncontaminated, that they may preserve their quality pure. They ought to be maintained also, it is added, by parents in the mid-

dle ranks, whose breasts are fired by a laudable ambition of promoting the rise of their children in the world ; because in such schools, only, can the children obtain access to those examples of noble bearing, and realize that refinement, tact, and mental delicacy, which they must possess before they can reach the summit of social honor.

This argument is a grand appeal to the vanity and the ignorance of those to whom it is addressed. I yield to no one in my estimate of the value of acuteness and vigor of mind, combined with taste, delicacy, and refinement of manners ; but I differ widely from the patrons of ancient literature in my estimate of the best means of imbuing the youthful mind with these qualities. I regard the qualities themselves as the results of two causes—First, the decided ascendancy of the moral feelings over the lower passions of our nature ; and secondly, the vigorous activity of a well-trained and truly enlightened intellect.

The basis of all real refinement lies in pure and generous affections, just and upright sentiments ; with a lively sensibility to the intrinsic excellence of beauty and grace, both physical and mental, wherever these exist. Now, I humbly maintain, that the pages of classic literature are not those in which these dispositions are presented in their strongest colors and most inviting forms to youthful minds, or in a way calculated to engage their sympathies, captivate their imaginations, or subdue their understandings in their favor. On the contrary, many ancient works are remarkable for the indelicacy of their subjects, (veiled only occasionally by brilliancy of fancy and playfulness of wit, and thereby rendered more deleterious and seductive to the youthful mind,) for the base selfishness of their heroes ; for the profligacy of their men of rank and

fashion ; for an utter contempt of the people ; and, although among their philosophers and sages, some truly great men are to be found, yet their writings do not constitute the burden of classical literature taught in schools ; nor are their manners, in any respect, patterns which could be followed with advantage by young men of modern times. In Greek and Roman literature, there is an almost entire destitution of interest in mankind as a progressive race ; the idea seems never to have entered the imaginations of ancient authors, that the day could ever come when slavery should cease ; when the common people should be enlightened and refined ; and when social institutions should be arranged not for the advantage of a patrician class, but to promote the general enjoyment of all. In short, scarcely one of the more important practical principles of Christianity, enlightened policy, or true philanthropy, is to be discovered in their pages.

No system of education which rests on such a basis, can impart true refinement to the youthful mind. It affords no adequate stimulus for the purest and noblest sentiments. It trains up a class to condemn and stigmatize the immense majority of their fellow-men, and to brand them with one single comprehensive epithet of dislike, embodying so completely every form of offensiveness, as to leave room for neither discrimination nor exception in its application to the people—the word “vulgarity.” *Odi profanum vulgus et arceo*,—“I hate the profane vulgar, and drive them away,”—is a maxim too easily imbibed from the classic page.

I conclude this subject, by remarking, that there is a vast difference between instruction and training, and that education should embrace both. Instruction means communicating knowledge ; while training implies the repetition of certain modes of action in the mind and body

until they have become habits. It is a law of our constitution, that any organ, when accustomed to repeat frequently its action, acquires additional strength and facility in doing so, and the force and advantages of habit arise from this law. If we merely tell a pupil how to point his toes, and place his feet, and what series of movements to execute, this is *instructing* him in dancing ; but it is not *training* him to the practice of the art. To accomplish the latter object, we must teach him actively to dance ; and the more frequently we cause him to repeat certain movements, short of occasioning fatigue, the more expert will he become in performing them. In like manner, mere information concerning natural objects, their agencies, and relations, is instruction ; while accustoming children to observe, to discriminate, to arrange, to operate, and to reason for themselves, is *training* their understandings.

Teaching a child to repeat the precepts and doctrines of the New Testament, is *instructing* him in religion and morality ; but he is not *trained* to religion and morality until he shall have been accustomed to practise these precepts in his daily conduct.

The Scripture says, “ *Train up a child in the way he should go ; and when he is old, he will not depart from it ;*” but it does not promise the same result from merely *instructing* him : In this respect, Scripture and Nature completely agree.\*

\* Since the first edition of these Lectures was published, several high authorities in classical literature have admitted the inexpediency of wasting from four to six years of the time of young men destined to merchandise or manufactures, in studying Greek and Latin. Professor Pillans says,

“ The strongest case against the advocates for classical education, is the practice that has hitherto prevailed, of making it so general, as to in-

In my next lecture, I shall consider the condition of the industrious classes, and also that of females of every rank, in regard to education, and offer a few suggestions on the means of imparting, to both, the elements of useful and entertaining knowledge.

clude boys, of whom it is known, beforehand, that they are to engage in the ordinary pursuits of trade and commerce ; who are not intended to prosecute their education further than school, and are not, therefore, likely to follow out the subject of their previous studies, much, or at all, beyond the period of their attendance here.

"I willingly allow, and have already admitted, that a youth who looks forward, from the very outset, to the practice of some mechanical or even purely scientific art, may employ his time better, in acquiring manual dexterity and mathematical knowledge, than in making himself perfectly acquainted with a dead language. There must be in all very large and populous towns, a class of persons in tolerably easy circumstances, and whose daily business affords them considerable leisure, but who contemplate for their children nothing beyond such acquirements as shall enable them to follow out the gainful occupation, and move in the narrow circle, in which they themselves, and their fathers before them, have spent a quiet and inoffensive life. It was for youth of this sort, that the Prussian government, with a sagacity and foresight characteristic of all its educational proceedings, provided what are called *bürger* and *mittel-schulen*,—intermediate steps between the *volks-schulen*, or primary schools, and the *Gymnasia*, or *gelehrte-schulen* ; and the French have wisely followed the example of Prussia, by ordaining the establishment of *ecoles moyennes*, called also *ecoles primaires supérieures*, in all towns above a certain population."—*Three Lectures on the Proper Objects and Method of Education, &c.* By James Pillans, M. A., F. R. S. E., &c., 1836.

The Edinburgh Review, in commending Professor Pillans's Lectures, says, "Nothing has more contributed in this country to disparage the cause of classical education, than the rendering it the education of all. That to many this education can be of little or no advantage, is a truth too manifest to be denied ; and on this admission the sophism is natural, to convert 'useless to many' into 'useful to none.' With us, the learned languages are at once taught too extensively, and not extensively enough, an absurdity in which we are now left almost alone in Europe."—No. 129. vol. lxiv. p. 123.

## LECTURE II.

THE question naturally presents itself, What constitutes a good education ? The answer will be found, by attending to the objects of education, and to the distinction between means and an end. As we have already discussed the objects of education, I proceed to remark, that if an architect be employed to build a house, he first considers the locality, next prepares a plan, and then calls in the aid of practical workmen, to combine his materials into the proposed erection. To be able to produce a plan, characterized at once by taste, elegance, and commodious arrangement, the architect must have studied mathematics and drawing. He may invent a design, by means of his intellectual faculties, but, without some knowledge of mathematics and drawing, he could not reduce it into a practical form. The plan itself, however, is only the means towards an end—the erection of a house. The acquisition and subsequent combination of the materials, in conformity with the design, accomplish the object.

Now, drawing and mathematics are admirable attainments, viewed as means towards producing a palace, bridge, or aqueduct ; but if they produce nothing *but themselves* ; or if they produce plans, merely pleasing to the fancy, but not applicable to purposes of utility, they must be viewed as mere ingenious recreations or elegant accomplishments.

What drawing and mathematics are to practical house-building, languages, writing, and arithmetic, are to a knowledge of things, and to practical business. They are means of acquiring and communicating knowledge ; and knowledge itself is only the element, by applying which, practically and skilfully, business may be transacted, and enjoyment procured. Indeed, I might go further, and say that drawing and mathematics embody ideas of form and proportion ; whereas language, apart from its applications, is a mere collection of arbitrary sounds. To limit the education of an individual, who is destined to act the part of a husband, father, and member of society, to reading, writing, accounts, and the dead languages, is less rational than to arrest the education of an architect at drawing, mathematics, and designing, without teaching him the strength, durability, cost, and modes of arrangement, of the materials for building. A young lady who could draw a handsome cottage, could not rear a fabric corresponding to it, because she is not an architect. The difference between her and an architect, consists in this,—that she is defective in all the practical skill, knowledge, and experience, which are indispensable to convert her design into an actual house. For a similar reason, a distinguished scholar in Greek and Latin, is not by this means necessarily rendered a practical man-of-business. He is not instructed in that knowledge of affairs, and of things that exist, the management of which constitutes business. As, however, the architect must begin by learning to draw, so the practical member of society must commence his education by studying the means of acquiring knowledge ; and I proceed to inquire what these means are.

The English language, writing, and arithmetic, then, are important *means* of acquiring and communicating

knowledge. They should be sedulously taught, and by the most approved methods. Algebra and pure mathematics also belong to the class of means. The former embraces only numbers and their relations ; the latter, space and its proportions. The most profound knowledge of these subjects, however, is compatible with extensive ignorance concerning every object, topic, and relation, that does not essentially imply exact proportions of number and space. All languages, likewise, belong to the class of means. In preferring one to another, we should be guided by the principle of utility ;—that language in which most knowledge is contained, is most useful. For this reason, French, German, and Italian, appear to be more valuable acquirements, than Greek and Latin.

One great object of education, is the attainment of knowledge itself.

If the season for obtaining real knowledge be dedicated to the study of languages, the individual will enter on active life in a state of qualification for practical business, similar to that of a lady for the practice of architecture, who has completed only her studies in drawing. He will be deficient in many acquirements that would be substantially useful for the preservation of his health and the successful conducting of affairs. He will know nothing about the structure of his own body, and very little about the causes which support it in health or subject it to disease : he will be very imperfectly informed concerning the constitution of his own mind, and the relations established between himself and other beings : he will not be instructed in any science ; know nothing of the principles of trade ; be profoundly ignorant of the laws of his country, which he will be called on to obey or even to administer ; in short, he will be sent into



society with little other preparation than a stock of prejudices gathered from the nursery, and of vague imaginations about the greatness of Greece and Rome, the beauties of classical literature, and the vast superiority of learned pedantry over practical sense.

To discover the evils that arise from this misdirection of education, we have only to advert to the numerous cases of individuals who ruin their constitutions, and die in youth or middle age, not from the fury of ungovernable passions which knowledge could not subdue, but from sheer ignorance of the physical conditions necessary to health;—or to the ruined fortunes and broken hearts clearly referable to the ignorance of individuals, of their own incapacity for the business in which they have embarked, of the characters of those with whom they have connected themselves, of the natural laws which govern production, or of the civil laws which regulate the transactions of men in particular states;—and to ask, how many of these calamities might have been avoided, by instruction and by proper discipline of the mind in the fields of observation and reflection?

To understand what constitutes useful and practical knowledge, you are requested to bear in mind the principles which I laid down and illustrated in the first lecture,—that every inanimate object and every living being, have received a definite constitution from the Creator, in virtue of which, each stands in one or other of two relations towards man:—either its natural qualities are such as he may bend to the purposes of his own enjoyment, or they are too gigantic to be subjected to his control, and he must accommodate his conduct to their sway. Water may be pointed to, as an example of the first class: Man, as I formerly observed, may turn the roaring current from its course, ere it dashes over the moun-

tain-cliff, and conduct it, as his humble slave, to his mill, where it may be made to grind his corn, weave his cloth, forge his iron, or spin his thread, according to the direction given to it by his skill : or, he may enclose it in strong metallic boilers, by fire convert it into steam, and bend its powers to propel his ship, in the face of the stormy winds and waves, to any wished-for haven : or, he may borrow from it wings with which to fly over field and meadow on the smooth lines of his artificial railway. But before he can command these high enjoyments, how minute and accurate must be his study of water and the laws by which it is governed, and of mechanical philosophy and its applications ! and how vast, skilful, and complicated must be his combinations of the rude materials with which Nature has furnished him !

Wind affords an instance of the powers which man cannot control, and to which he must accommodate his conduct. He cannot guide the air as he does the stream of water ; but he may give to his mill-house a revolving top, so that let the wind blow from what point it listeth, his sails shall spread their bosoms directly to the breeze. He cannot bid the gale blow gently or with force according as he may wish, by means of his machinery, merely to impel the saw through a slender pine, or to crush into dust a mass of flint ; but he is able to regulate his canvass in proportion to the power required, so that the wind, if impetuous, shall press a contracted surface, and, if gently blowing, shall be caught by a broad, expanded sail. Man has no power over the direction of the wind on the ocean : but by the skilful construction of his vessel, the adaptation of his masts and sails, and the giant power of the helm, he is enabled to accommodate his bark to its influence, and to steer within a few points of the wind's eye. How much of observation, how much of skilful

combination, and how much of practical adaptation of the powers which man can wield, to those which defy his control, must be put forth, before this glorious triumph of his ingenuity, can be accomplished !

These illustrations are of general application. In common life, we may never need to forge, to weave, to steer, or to spin ; but we must all prosecute some vocation of usefulness and duty, otherwise we exist in vain. In whatever sphere of life we move, we are encompassed by the elements of Nature, which minister to our health and enjoyment, or to our detriment and discomfort, according as we use them wisely or the reverse, according as we adapt our conduct to their real qualities or run counter to their influence : We are surrounded by human beings, and are influenced by the great tides of public affairs ; and without knowledge of external nature, and of the nature of man, his history, laws, and institutions, we shall be no more capable of acting well and wisely through life, than is the mariner of steering successfully without helm, compass, or chart.

Moral and religious knowledge must be pursued as the studies of our lives. Hitherto, the great object of preachers has been to communicate this kind of knowledge, and I sincerely wish success to their efforts. I do not here enlarge on moral and religious education, because society is alive to its importance. To give effect, however, to this instruction, I consider a trained and enlightened intellect, and disciplined moral sentiments, to be indispensably necessary ; and these can be attained only by combining secular with sacred knowledge.

To attain to useful knowledge of natural objects, and the laws of their action, it is necessary to study chemistry, physiology, anatomy, natural history, and natural philosophy. These make us acquainted with Nature, and

ought to constitute important branches of education. For the industrious portions of the people, it is not necessary to teach these sciences in minute detail. Elementary instruction, by means of primary schools, and, at a later age, by popular lectures elucidating their leading principles and applications, would be of incalculable benefit. It is delightful to be able to record that a neighboring nation—Prussia—has set a noble example to Europe on the subject of Education. In Prussia,\* as in Germany, generally, it is obligatory on all parents to send their children to school from the age of seven to fourteen, beginning earlier if they choose; and the duty is enforced by penalties. Each parish is bound to support an elementary school; each considerable town a burgher school, for the more advanced studies; each considerable district a gymnasium, for classical studies; and each province has its university. The parish-school is supported by the parish, and for its management all the landholders and heads of families are formed into a union, which appoints a committee to inspect and watch over the school. The system of instruction is prescribed by authority, and is nearly uniform for the whole monarchy. It embraces, in the *elementary* schools, 1. Religion and morals; 2. The German tongue; 3. Elements of geometry and drawing; 4. Arithmetic, pure and applied; 5. The elements of physics, (meaning chemistry and natural philosophy,) general history, and the history of Prussia; 6. Singing; 7. Writing; 8. Gymnastic exercises; 9. “The more simple manual labors,” by which seems to be meant the use of tools employed in the most common occupations, such as the spade, pick-axe, saw, plane, file, trowel, stone-chisel, &c. The burgher school embraces the same branches, carried further, with

\* Edinburgh Review, No. 116.

the addition of a little Latin, the study of which is not, however, universally enforced. The instruction is not gratuitous, except to the poor. The provision to be made by the parish embraces, 1st. A salary to the schoolmaster, with a retired allowance for him in old age ; 2d. A schoolhouse, well aired and heated ; 3d. Books, maps, models for drawing, collections in natural history, gymnastic apparatus, &c. ; 4th. Aid to poor scholars. The fund is raised by contributions, levied on the inhabitants according to the amount of their property or the produce of their industry, and by moderate fees, which are not paid to the schoolmaster, but to the parochial managers. There are cantonal courts and inspectors, who control and inspect all the schools in a canton ; others for departments, with a wider authority ; others, with still more extensive powers, for the provinces ; and, above all, there is the minister of public instruction. In all the courts, councils, or commissions, exercising authority over the schools of any class, there are a few of the clergy,—Protestant and Catholic being admitted, according as the scholars belong to the one or the other church ; and great care is taken to prevent the slightest offence being offered to the religious feelings of any party. The choice of the books in the elementary schools, is left to the local committees. There are half-yearly examinations ; and the boys leaving school obtain certificates of their capacity and their moral and religious dispositions, which must be produced when they go to the communion, or enter into apprenticeship or service. The Prussian plan embraces also what are of essential importance, schools for training persons to act as teachers. There are thirty-four of these seminaries, where, besides studying the different branches of knowledge to be taught, the pupils learn also the art of instruction.

A similar system of education is pursued in the boarding-schools of Germany. The following letter, written by a young gentleman who is personally known to me, and who, after studying at the High School of Edinburgh, went to Cassel and Göttingen, is lively and instructive.

“In Germany, as in England, boarding-schools are the principal seminaries of education, day-schools like those which we have in Edinburgh, being seldom, if ever, met with. These boarding-schools are attended not only by the boys who reside with the teacher, but also by what are called day-boarders ; and masters for drawing, dancing, music, and other ornamental and useful accomplishments, teach at stated hours, as in similar establishments in this country. There are in Germany no such institutions as our High School, where almost nothing but Latin is taught ; and indeed no one thinks of learning Latin, except those who are intended for the learned professions, and who absolutely require a knowledge of it. Thus, boys in general, instead of spending five or six years in a state of misery, are enabled to acquire an extensive stock of useful and practical information.

“In German boarding-schools, natural history is a prominent object of pursuit, and the boys are instructed in the outlines of Zoology, Ornithology, Entomology, and Mineralogy. This, I believe, is a branch of education never taught in seminaries of the same description in Britain ; but it is devoured by the learners on the Continent with the utmost avidity. There, the teacher is not an object of fear, but the friend of his pupils. He takes them, about once a-fortnight, to visit some manufactory in the neighborhood, where they are generally received with kindness, and are conveyed through the whole building by the owners, who seem to have pleas-

ure in pointing out the uses of the various parts of the machinery, and in explaining to their juvenile visitors the different operations which are carried on. Suppose, for example, that an expedition is undertaken to a paper-mill : the boys begin their scrutiny by inspecting the rags, in the condition in which they are first brought in ; then they are made to remark the processes of cutting them, of forming the paste, of sizing the paper, &c., with the machinery by which all this is executed. On their return, they are required to write out an account of the manufactory, of the operations performed in it, and of the manufactured article.

“ During the summer months, pedestrian excursions are undertaken, extending to a period of perhaps two, three, or four weeks. Every thing worthy of attention is pointed out to the boys as they go along ; and deviations are made on all sides, for the purpose of inspecting every manufactory, old castle, and other remarkable object in the neighborhood. Minerals, plants, and insects are collected as they proceed, and thus they early begin to appreciate and enjoy the beauties of external nature. If they happen to be travelling in the mountainous districts of the Hartz, they descend into the mines, and see the methods of excavating the ore, working the shafts, and ventilating and draining the mine. Ascending again to the surface, they become acquainted with the machinery by which the minerals are brought up, the processes of separating the ore from the sulphur, and the silver from the lead, and the mode in which the former metal is coined into money.

“ Having become familiar with these operations, the boys next, perhaps, visit the iron-works, and here a new scene of gratification is opened to their faculties. The furnaces, the principles of the different kinds of bel-

lows, the method of casting the iron and forming the moulds,—every thing, in short, is presented to their senses, and fully expounded to them. In like manner, they are taken to the salt-works, and manufactories of porcelain, glass, acids, alkalies, and other chemical bodies, with which that part of Germany abounds. If any mineral springs be in the neighborhood, these are visited, and the nature and properties of the water explained. In short, no opportunity is neglected, by which additions to their knowledge may be made. In this way, I may say without exaggeration, they acquire, in the course of a single forenoon, a greater amount of useful, practical, and entertaining knowledge, than they could obtain in six months at a grammar-school. For my own part, at least, I learned more in one year at Cassel, than during the five preceding which were spent in Edinburgh. This knowledge, too, is of a kind that remains indelibly written on the memory, and that is often recalled, in after-life, with pleasure and satisfaction. How different were my feelings, when thus employed, from those which tormented me in that place of misery, the High School of Edinburgh !\*

\* This letter was inserted in No. XXX. of the Phrenological Journal, and the Editor (not myself) here subjoins the following note : “Our correspondent’s language is strong ; but as we know it to be nothing more than the expression of honest and heartfelt indignation, we have allowed it to remain unmodified. We ourselves can never forget the *tedium vitæ* which attended us, during the lingering years in which we made a strenuous but unsuccessful attempt, to overcome the difficulties of Latin Syntax at the High School of Edinburgh. Often did we envy the condition of boys, who labored in the field for a scanty subsistence, but whose minds were free from the intolerable and spirit-breaking *incubus* of Latin grammar.” It is proper to add, that, in another seminary, and at college, the writer of this note subsequently attained considerable proficiency in classical literature, and is an admirer of it ; circumstances, however, which do not prevent him from concurring in the views expressed in these lectures regarding classical education.



“ These journeys not only have a beneficial effect on the mind, but also conduce, in no small degree, to the growth and consolidation of the body. They are performed by short and easy stages, so as not to occasion fatigue.

“ On their return home, the boys write an account of their travels, in which they describe the nature of the country through which they have passed, and its various productions, minerals, and manufactures. This is corrected and improved by the teacher. The minerals and plants which have been collected, serve at school to illustrate the lessons. The boys likewise go through a regular course of study, and receive lessons on Religion, Geography, French, and the Elements of Geometry. They are taught also the Elements of Astronomy ; not merely the abstract particulars generally given in courses of geography in this country, relative to the moon’s distance, the diameter and period of revolution of the earth, and the like, but also the relative positions of the principal constellations. The figures of cubes, cones, octagons, pyramids, and other geometrical figures, are impressed upon the minds of the junior boys, by pieces of wood, cut into the proper shapes. Latin is taught to those who particularly desire it. Poles are erected in the garden for gymnastics, and the boys receive every encouragement to take muscular exercise.

“ Now, this method of education seems to me—indeed I know experimentally that it is—so vastly superior to that which is in vogue in Edinburgh, that I can never cease to wonder that the barbarisms of the dark ages should still be allowed to exert their influence among us. In Germany, the boys enter the schools which I have described, at the age of eight or nine, and leave them

when about fourteen or fifteen, at which period, those intended for the learned professions enter the lyceums, preparatory to enrolling their names at the universities. Now, whether is it more rational for a boy, at that period of life, to consume his valuable time in the dreary halls of the High School, in acquiring scarcely one useful idea, or to employ it in the pursuit of substantial knowledge? For my own part, I shall always look back on the time which I spent in obtaining a superficial acquaintance with the Latin tongue, as a hideous blank in my existence."

In this country, we have not enjoyed the preparatory training which fits the poorest peasant in Prussia for relishing instruction in the higher branches of science; and not only has education in useful knowledge been neglected, but prejudices are entertained by many excellent persons against it. Dr. Drummond\* has furnished an admirable answer to this objection. The passage is long, but its excellence is my apology for introducing it.

"You will, perhaps," says he, "treat the idea of teaching matters of science to people generally, as chimerical; but be not over hasty. It is still too common a persuasion, that knowledge should be a monopoly, belonging solely to the learned and highly educated; but there is a vast fund of information of the very highest value, which can be understood by persons who have had little previous tutoring, either in school or university. There is a vast mass of knowledge which admits of easy explanation, and which could be comprehended by men of the most moderate education; and why is it withheld from them? Is the sun still to shine in the heavens, the planets

\* See the excellent and eloquent 'Letters to a Young Naturalist, on the Study of Nature and Natural Theology. By James L. Drummond, M. D.' &c. Longman & Co., London, 12mo. pp. 342.

to roll on in their orbits, the comets to shoot beyond imagination's wing into the regions of space, and the constellations to sparkle for ever on the canopy of night ; and yet our brethren of the human race, a very small portion excepted, to know no more about them than merely that they are the sun and stars ?

“ Will it be said, that the great truths of astronomy can only be made plain to the understandings of those who are profound mathematicians and philosophers ? There are lengths in every science, indeed, which can only be gained by long and deep study ; but although it required a Newton to unfold the mystery of the planetary motions, as guided and controlled by the law of gravitation, still these motions, and most of the sublime facts of astronomy, can be comprehended by the bulk of the people, from plain illustrations, given in plain and perspicuous language. But of this, and of Nature, in general, they are kept in deep ignorance. Simple truths, when simply explained, are more easily comprehended, I believe, than is commonly supposed ; and I feel satisfied, that the task of teaching mankind, in general, such solid and various knowledge, as would tend most powerfully to advance both civilization and morality, is any thing but hopeless. Knowledge has been truly said by Bacon to be power ; and with equal, at least, if not greater truth, it may be asserted, that, when pursued with a reference to the God of all knowledge, it is virtue.”

“ There is no limit to the study of the Almighty in his works. All Nature, from the north to the south, and from the east to the west, offers examples innumerable of the power and wisdom with which He works throughout the visible world before us. In the heavens we find suns the centres of systems, and an endless series of rolling worlds ; and when we descend from the consideration

of suns and systems,—of stars wheeling in their orbits with a velocity quicker than thought,—of worlds, compared with which the globe we inhabit is in magnitude as a mole-hill,—how delightful is it to find, that on this ball, insignificant as it is in comparison with thousands of the heavenly orbs, the God of all displays himself in characters not less strong, to the inquiring mind, than in the boundless ocean of space that holds the sun and stars !

“ Let us consider an *insect*, or let us study the laws which *direct a planet* ; let us contemplate the *solar system*, or inquire into the history of an *ant-hill* or a *honey-comb* ; the mind, the truly *valuable* portion of the compound called Man, recognises in the vast, as well as in the minute, and *vice versa*, the master mind, the God, the omnipotent power—express it by what name we will—which formed and which governs the mighty whole, in all its magnitudes, in all its minima. Paley observes, in his *Natural Theology*,—a work which I can never too highly recommend to your notice,—that, ‘ the works of Nature want only to be contemplated. When contemplated, they have every thing in them which can astonish by their greatness : for, of the vast scale of operation through which our discoveries carry us, at one end we see an intelligent power arranging *planetary systems*,—fixing, for instance, the trajectory of *Saturn*, or constructing a ring of 200,000 miles diameter, to surround his body, and be suspended like a magnificent arch over the heads of his inhabitants ; and, at the other, bending a *hooked tooth*, concerting and providing an appropriate mechanism for the clasping and reclasping of the filaments of the feather of the humming-bird ? We have proof, not only of both these works proceeding from an intelligent agent, but of their proceeding from the same agent : for, in the first place, we can trace an identity of plan, a

connexion of system, from Saturn to our own globe ; and when arrived upon our globe, we can, in the second place, pursue the connexion through all the organized, especially the animated, bodies which it supports. We can observe marks of a common relation, as well to one another, as to the elements of which their habitation is composed. Therefore, one mind hath planned, or at least hath prescribed a general plan for, all these productions. One Being has been concerned in all.' ”

Knowledge of man himself, his mental endowments, his history, and his institutions, belongs to the class of useful information. In addition to the sciences already mentioned, therefore, a useful education would embrace instruction in mental philosophy, geography, civil history, political economy, and religion. A genius or taste for poetry, music, painting, sculpture, or languages, is bestowed by Nature on particular individuals, and these branches of knowledge should be taught to those who have an aptitude for them. They are of much value as means of elevating and refining human nature ; but, unless there be in the mind a decided talent for them, they should not be made the great objects of education, or the business of life. I request you particularly to observe, that I do not denounce the ancient languages and classical literature on their own account, or desire to see them cast into utter oblivion. I admit them to be refined studies, and think that there are individuals who, having a natural turn for them, learn them easily, and enjoy them much. They ought, therefore, to be cultivated by all such persons. My objection is solely to the practice of rendering them the main substance of the education bestowed on young men, who have no taste or talent for them, and whose pursuits in life will not render a knowledge of them a valuable acquisition. The fine arts, also,

should be taught as enjoyments, and a relish for them encouraged ; but in common minds, a considerable amount of moral and intellectual cultivation must *precede* their due appreciation.

Further, as long as the present institutions of society exist, some knowledge of Greek and Latin is indispensable to young men, who mean to pursue medicine, or law, as a profession. Of course, Greek must be studied by divines.

Suppose, then, knowledge to be obtained, we may inquire into its uses. One great use of knowledge is the preservation of health. This, although greatly overlooked in established systems of education, is of paramount importance. Life depends on it, and also the power of exercising with effect all the mental functions. There are two modes of instructing an individual in the preservation of health ; the one by informing him, as a matter of fact, concerning the conditions on which it depends, and admonishing him, by way of precept, to observe them—the other, by expounding to his intellect the constitution of his bodily frame, and teaching him the uses of its various parts, the abuses of them, the relations established between them and external objects, such as food, air, water, heat, and cold, and the consequences of observance or neglect of these relations. The former method, addresses the memory, chiefly ; the latter, the judgement. The former, comes home to the mind, enforced only by the authority of the teacher ; the latter is felt to be an exposition of the system of Nature, and deeply interests at once the intellect and affections. The former, affords rules for particular cases ; the latter, general principles, which the mind can apply in all emergencies.

The instruction here recommended, implies an exposition of the principles of anatomy and physiology.

Another use of knowledge is to enable us to exercise the mental faculties themselves, so as to render them vivacious and vigorous, and thereby to promote our usefulness and enjoyment.

The wonderful effect of a change from inactivity to bustle and employment is well known in ordinary life, and is explicable only on the principle of strengthening the mind by a due amount of exercise. In nine cases out of ten, a visit to a watering place, or a journey through an interesting country, restores health more by giving excitement to the mind than by means of the water swallowed, or the locomotion endured. And it is well known that, under strong excitement, weak and delicate persons will not only exert double muscular force, but even prove superior to the effects of miasma and contagion, to which, when unexcited, they would have been the first victims. In the army, also, it is proverbial, that the time of fatigue and danger is not the time of disease. It is in the inactive and listless months of a campaign, that crowds of patients pass to the hospitals. In the former cases, it is active exercise, giving strength to the mind, and, through it, healthy vigor to the body, which produces the effect.

Now, instruction in natural science connects our sympathies with real existences and living beings,—furnishes our understandings with positive and precise ideas, and brings home to our minds an irresistible conviction of our being placed in the midst of agents, physical, animal, moral, and intellectual, to whose qualities we must adapt our conduct, if we desire to enjoy life. It furnishes us with the means not only of planning useful occupations, but of executing our designs ; and in such courses of action there is the highest enjoyment.

A third use of knowledge is to qualify us to perform our duties, physical, moral, and religious, in the best

manner, and to reap the fullest enjoyment, here and hereafter, which Providence allots to those who best fulfil the objects of their existence, and yield the most perfect obedience to the Divine laws.

The principles which I have hitherto advanced, are applicable to all classes of human beings ; but the chief subjects of the present lectures are the education, first, Of the industrious portion of the community, including all who live by their labor and talents, and do not belong to the learned professions ; and, secondly, Of females of every rank, for whom no adequate means of instruction in useful knowledge are, in general, provided.

1. In regard to the education of the industrious classes. They constitute between thirteen and fourteen out of the sixteen millions of population in Great Britain. Our opinions of the kind of education which they should receive, will depend on the objects which we assign to their lives. If they have been created by Providence merely to toil and pay taxes, to eat, sleep, and transmit existence to future generations, a limited education may suffice : but if they have been born with the full faculties of moral, intellectual, and religious beings ; if they are as capable, when instructed, of studying the works of God, of obeying his laws, of loving Him and admiring his institutions, as any class of the community ; in short, if they are rational beings, capable of all the duties, and susceptible of all the enjoyments, which belong to the rational character ; then no education is sufficient for them which leaves any portion of their highest powers waste and unproductive. This is the light in which I regard them ; and the grand question presents itself, What mode of life, and what kind of pursuits, are best adapted to the nature of man ? In answering this question,



we must keep in mind, that human nature consists of the following elements :—

1. An organized body, requiring food, exercise, and rest, in due proportions ;
2. Animal propensities, requiring gratification ;
3. Moral sentiments, demanding exercise and enjoyment ;\*
4. Intellectual faculties, calculated to acquire knowledge, and intended to direct the voluntary bodily functions and the mental feelings and desires, in their pursuit of gratification.

In the present state of society, the industrious classes, or great mass of the people, live in the habitual infringement of the most important laws of their nature. Life with them is spent to so great an extent in labor, that their moral and intellectual powers are stinted of exercise and gratification ; and hence their mental enjoyments are chiefly those afforded by the animal propensities : in other words, their existence is too little *rational* ; they are rather organized machines than moral, religious, and intellectual beings. The chief duty, performed by their higher faculties, is, not to afford predominant sources of enjoyment, but to communicate so much intelligence and honesty, as to enable them to execute their labors with fidelity and skill. I mean no disrespect to this most deserving portion of society : on the contrary, I represent their condition, in what appears to me to be its true light, only with a view to excite them to amend it. I speak, of course, of the great body of the laboring population : There are among them many individual exceptions, who possess higher attainments.

Does human nature, then, admit of such a modification

\* The term *moral sentiments*, when used in these lectures, always implies the religious feelings, which I regard as innate.

of the employments and habits of this class, as to raise them to the condition of beings whose chief pleasures shall be derived from their rational natures?—that is, creatures whose bodily powers and animal propensities shall be subservient to their moral and intellectual faculties, and who shall derive from the latter their leading enjoyments? To attain this end, it would not be necessary that they should *cease to labor*; on the contrary, the necessity of labor to the enjoyment of life, is imprinted in strong characters on the structure of man. The osseous, muscular, and nervous systems of the body, all demand exercise as a condition of health; while the digestive and sanguiferous apparatus rapidly fall into disorder if due exertion be neglected. Exercise of the body is labor; and labor directed to a useful purpose is as beneficial to the corporeal organs, and far more pleasing to the mind, than when undertaken for no end but the preservation of health.

Commerce is rendered advantageous by the Creator; because different climates yield different productions. Agriculture, manufactures, and commerce, therefore, are adapted to man's nature, and I am not their enemy. But they are not the *ends* of human existence, even on earth. Labor is beneficial to the whole human economy, and it is a mere delusion to regard it as in itself an evil; but the great principle is, that it must be moderate both in severity and duration, in order that men may enjoy, and not be oppressed by it. I say *enjoy* it; because moderate exertion is pleasure, and it has been only labor carried to *excess*, which has given rise to the common opinion, that *retirement* from active industry is the goal of happiness.

It may be objected that a healthy and vigorous man is not oppressed by ten or twelve hours' labor a-day; and

I grant that, if he be well fed, his strength may not be so much exhausted by this exertion as to cause him pain. But this is regarding him merely as a working animal. My proposition is, that after ten or twelve hours of muscular exertion a-day, continued for six days in the week, the laborer is not in a fit condition for that active exercise of his religious, moral, and intellectual faculties which befits him as a rational being. The activity of these powers depends on the condition of the brain and nervous system ; and these organs are exhausted and deadened by too much muscular exertion. The fox-hunter, and ploughman fall asleep when they sit and attempt to read or think. The truth of this proposition is demonstrable on physiological principles, and is supported by general experience ; nevertheless, the teachers of mankind have too often neglected it. The first change, therefore, which is to be desired is, to limit the hours of labor, and to dedicate a portion of time daily to the exercise of the mental faculties.

So far from this limitation being unattainable, it appears to me that the progress of arts, sciences, and society, is preparing the way for its adoption. Ordinary observers appear to conceive man's chief end, in Britain, at least, to be to manufacture hardware, broadcloth, and cotton goods, for the use of the whole world, and to store up wealth. They forget that the same impulse which inspires the British with so much ardor in manufacturing, will sooner or later inspire other nations also ; and that, if all Europe shall follow our example, and employ efficient machinery and a large proportion of their population in our branches of industry, which they are in the course of doing, the four quarters of the globe will at length be glutted with manufactured goods, only part of which will be needed for use. This state of things may

be very distant, but in proportion as knowledge and civilization shall be diffused, it will approach, and men will be compelled, by necessity, to abridge their toil, because excessive labor will cease to be remunerated. The admirable inventions which are the boast and glory of civilized nations, are supposed, by many persons, to be at this moment adding to the misery and degradation of the people. Power-looms, steam-carriages, and steam-ships, it is asserted, have all hitherto operated directly in increasing the hours of exertion, and abridging the reward of the laborer ! This is the case only to a very limited extent, and the sufferers are those whose labor has been superseded by improved machines. Can we believe that God has bestowed on us the gift of an almost creative power, solely to increase the wretchedness of the many, and to minister to the luxury of the few ? Impossible. The ultimate effect of mechanical inventions on human society, appears to be scarcely yet divined. I hail them as the grand instruments of civilization, by giving leisure to the great mass of the people to cultivate and enjoy their moral, intellectual, and religious powers.

One requisite to enable man to follow pursuits referrible to his higher endowments, is, provision for the wants of his animal nature, viz. food, raiment, and comfortable lodging. It is clear that muscular power, intellect, and mechanical skill, have been conferred on him, with the design that he should build houses, plough fields, and fabricate commodities. But assuredly we have no warrant, from reason or Revelation, for believing, that any portion of the people are bound to dedicate their whole lives and energies, aided by all mechanical discoveries, to these ends, as their proper business, to the neglect of the study of the works and will of the Creator ? Has man been permitted to discover the steam-engine, and apply it in

propelling ships on the ocean and carriages on railways, in spinning, weaving, and forging iron ; and has he been gifted with intellect to discover the astonishing powers of physical agents, such as are revealed by chemistry and mechanics ; only that he may be enabled to build more houses, weave more cloth, and forge more iron, without any direct regard to his moral and intellectual improvement ? If, a century ago, an individual had wished to travel from Manchester to Liverpool, a distance of thirty miles, he, unaided by animal or mechanical power, would have needed to devote ten or twelve hours and considerable muscular energy, to the task. When roads and carriages were constructed, and horses trained, he might, by their assistance, have accomplished the same journey in four hours, with little fatigue ; and now, when railways and steam-engines have been successfully completed, he may travel that distance, without any bodily fatigue whatever, in an hour and a half. If it be asked, For what purpose has Providence bestowed the nine hours which are thus set free as spare time to the individual ? I respectfully answer, For the purpose of cultivating his rational nature.

Again, before steam-engines were applied to spinning and weaving, a human being would have been forced to labor, perhaps for a month, in order to produce linen, woollen, and cotton cloth, necessary to cover his own person for a year ; in other words, the twelfth part of the time of each individual would necessarily have been spent in making raiment for himself, or, in case of a division of labor, a twelfth part of the population would have been constantly engaged in this employment ; by the application of machinery, moved by steam, the same ends may be accomplished in a day. I repeat the inquiry—For what purpose has Providence bestowed the twenty-nine

days out of the month, set free by the invention of machinery? These proportions are stated not as statistically correct, but as illustrations of a proposition, that every discovery in natural science, and invention in mechanics, has a direct tendency to increase the leisure of man, and to enable him to provide for his physical wants with less laborious exertion.

The question recurs, whether, in thus favoring the human race, the object of Providence be, to enable only a portion of them to enjoy the highest luxuries, while the mass shall continue laboring animals; or whether it be not to enable *all* to cultivate and enjoy their rational nature?

In proportion as mechanical inventions shall be generally diffused over the world, they will increase the powers of production to such an extent, as to supply, by moderate labor, every want of man; and then, the great body of the people will find themselves in possession of reasonable leisure, in spite of every exertion to avoid it. Great misery will probably, be suffered in persevering in the present course of action, before their eyes shall be opened to this result. The first effect, of these stupendous mechanical inventions threatens to be to accumulate great wealth in the hands of a few, without proportionally abridging the toil, or adding greatly to the comforts, of the many. This process of elevating a part of the community to affluence and power, and degrading the rest, threatens to proceed, till the disparity of condition shall have become intolerable to both, the laborer being utterly oppressed, and the higher classes harassed by insecurity. Then, probably, the idea may occur, that the real benefit of physical discovery is to give leisure to the mass of the people, and that leisure for mental improvement is an indispensable condition of true civilization, knowledge

being another. Wealth puts time at the command of its possessors, and is thus highly conducive to human improvement. The science of human nature will enable men at length to profit by exemption from excessive toil ; and it may be hoped that, in course of time, the notion of man being really a rational creature, may meet with general countenance, and that sincere attempts may be made to render all ranks prosperous and happy, by institutions founded on the basis of the superior faculties.\*

The same means will lead to the realization of practical Christianity. An individual, whose active existence is engrossed by mere bodily labor, or by the pursuits of gain or ambition, lives under the predominance of faculties that do not produce the perfect Christian character. The true practical Christian possesses a vigorous and enlightened intellect, and moral affections glowing with gratitude to God and love to man ; but how can the people at large be enabled to realize this condition of mind, if stimulus for the intellect and the nobler sentiments be excluded by the daily routine of their occupation ?

\* I regret to learn that, in some districts of England, the operatives have resolved to abridge their labor, but to allow of no diminution of their pay ; they have demanded for eight hours work, the wages hitherto paid for the labor of twelve hours. This proposal is unreasonable and unjust, and cannot be successful. They ought, in the first year, to demand one hour's leisure and abate one hour's wages. If they applied that hour well, and acted peacefully and in concert, the natural increase of population and capital would in time create an increased demand for their labor, and their wages would rise. When this happened, they might abate another hour's labor and wages, and the same causes would again restore the rate of wages. This process might be repeated till the hours of labor were reduced to eight or nine per day, which would leave ample leisure for mental cultivation and enjoyment. If this shall prove impracticable, it is difficult to see by what means any improvement can be accomplished in the condition of the great body of the people.

If the notions now advocated, shall ever prevail, it will be seen that the experience of past ages affords no sufficient reason for limiting our estimate of man's capabilities of civilization. I traced out the long and gradual preparation of the globe for man : he appears to me to be destined to advance only by stages to the highest condition of his moral and intellectual nature, and, apparently, he is yet only in the beginning of his career. Although a knowledge of external nature, and of himself, are indispensable to his advancement to his true station as a rational being, yet four hundred years have not elapsed, since the arts of printing and engraving were invented, without which, knowledge could not be disseminated through the mass of the people ; and, up to the present hour, the art of reading is by no means general over the world—so that, even now, the *means* of calling man's rational nature into activity, although discovered, are but very imperfectly applied. It is only five or six centuries, since the mariner's compass was discovered in Europe, without which, even philosophers could not ascertain the most common facts regarding the size, form, and productions of the earth. It is only three hundred and forty years, since one-half of the habitable globe, America, became known to the other half ; and considerable portions of it are yet unknown even to the best-informed inquirers. It is little more than two hundred years, since the circulation of the blood was discovered ; previously to which it was impossible, even for eminent physicians, to form any correct idea of the uses of many of man's corporeal organs, and of their relations to external nature. It is only between forty and fifty years, since the true functions of the brain and nervous system were discovered ; before which, we possessed no adequate means of becoming acquainted with our mental



constitution, and its adaptation to external circumstances and beings. It is only fifty-seven years, since the study of chemistry, or of the physical elements of the globe, was put into a philosophical condition by Dr. Priestley's discovery of oxygen ; and hydrogen was discovered so lately as 1766, or sixty-eight years ago. Before that time, people in general were comparatively ignorant of the qualities and relations of the most important material agents with which they were surrounded. At present this knowledge is still in its infancy, as will appear from an enumeration of the dates of several other important discoveries. Electricity was discovered in 1728, galvanism in 1794, gas-light about 1798 ; and steam-boats, steam-looms, and the safety-lamp, in our own day.

It is only of late years that the study of geology has been seriously begun : without which we could not know the past changes in the physical structure of the globe, a matter of much importance as an element in judging of our present position in the world's progress. This science, also, is in its infancy. An inconceivable extent of territory remains to be explored, from the examination of which, the most interesting and instructive inferences will probably present themselves.

The mechanical sciences are at this moment in full play, putting forth vigorous shoots, and giving the strongest indications of youth, and none of decay. The sciences of morals and of government, however, are still in a crude condition.

In consequence of this profound ignorance, man, in all ages, has been directed in his pursuits by the mere impulse of his strongest propensities, at one time to war and conquest, at another to animal pleasure, and at a third to accumulating wealth, without having framed his

habits and institutions in conformity with correct and enlightened views of his own nature, and its real interests and wants. Down to the present day, the mass of the people, in every nation, have remained essentially ignorant, the tools of interested leaders, or the creatures of their own blind impulses, unfavorably situated for the development of their rational nature. They constitute the great majority, and of necessity their condition influences that of the rest. But the arts and sciences are now tending towards abridging human labor, and promise to force leisure on the mass of the people ; the elements of useful knowledge are rapidly increasing ; and the capacity of the operatives for instruction is generally recognised, while the means of communicating it are powerful and abundant ; so that a new era may fairly be considered as having commenced.

It has sometimes appeared to me that divines, with the best intentions, have obstructed the progress of human improvement, by coloring too highly the representations of man's depravity and weakness, and urging, in too strong terms, his natural incapacity for any good. These views repress exertion, and foster indolence and ignorance. Dr. Chalmers entertains more favorable opinions of our nature, and I rejoice in calling your attention to the eloquence, as well as the truth, of the following remarks. " We might not know the reason," says he, in his *Bridgewater Treatise*, " why, in the moral world, so many ages of darkness and depravity should have been permitted to pass by, any more than we know the reason why, in the natural world, the trees of a forest, instead of starting all at once into the full efflorescence and stateliness of their manhood, have to make their slow and laborious advancement to maturity, cradled in storms, and alternately drooping or expanding with the vicissi-

tudes of the seasons. But though unable to scan all the cycles either of the moral or natural economy, yet we may recognise such influences at work, as, when multiplied and developed to the uttermost, are abundantly capable of regenerating the world. One of the likeliest of these influences, is the power of education, to the perfecting of which so many minds are earnestly directed at this moment, and for the general acceptance of which in society, we have a guarantee in the strongest affections and fondest wishes of the fathers and mothers of families.” (Vol. i. p. 186.)

Add to these reasons for hoping well of our nature, the discovery, that the *capacity* for civilization may be increased by exercising the moral and intellectual faculties, in conformity with the laws of organization ; a fact which Phrenology brings to light,\* and from which the happiest results may be anticipated in regard to human improvement. History represents man as having been hitherto a blind, passionate, fighting animal, rather than a rational and moral being ; and even now, we do not feel entirely secure against a recurrence of rapine and war. Yet fighting and plundering are calculated to gratify only a few of the human faculties, and these the lowest in the scale ; while they outrage the higher and better feelings. In proportion as the knowledge of our true good, and of the real relations of our nature to the external world, shall increase, the appetite for war will diminish ; and it must entirely cease whenever Christian morality shall be generally acknowledged to be the practical rule which man is bound—and for his own happiness also interested—to obey.

\* The power of manifesting the mental faculties increases in proportion to the size and improvement, in the constitution of the organs, by means of which they act : and exercise of these organs has a tendency both to increase their volume and to ameliorate their quality.

The objection has been stated, that, even in the most improved condition of the great body of the people, there will still be a considerable proportion of them so deficient in talent, so incapable of improvement, and so ignorant, that their labor will be worth little ; that, as they must obtain subsistence, no alternative will be left to them but to compensate, by protracted hours of exertion, their deficiencies in skill ; and that their labor, furnished at a cheap rate, will affect all other classes of society, and prevent the views now taken from ever being generally realized. This objection resolves itself into the proposition, That the people have been destined by the Creator to be laboring animals, and that, from their inherent mental defects, they are incapable, generally, of being raised to any more honorable station ; which is just the great point at issue between the old and the new philosophy. If mankind at large, (for the industrious classes constitute so very great a majority of the race, that I may be allowed to speak of them as the whole,) had been intended for mere hewers of wood and drawers of water, I do not believe that the moral and intellectual faculties which they unquestionably possess, would have been bestowed on them ; and as they do enjoy the rudiments of all the feelings and capacities which adorn the highest of the race, and as these faculties themselves are improvable, I do not subscribe to the doctrine of the permanent incapacity of the race. I consider them quite capable of becoming qualified, in successive generations, to perform the duties, and to reap the enjoyments of rational beings ; and whenever the great majority of them shall have acquired a sense of the true dignity of their nature, and a relish for the enjoyments afforded by their higher faculties, they will be found capable of regulating the supply of labor in reference to the demand, in such a

manner as to obtain the means of subsistence, in return for moderate exertion. I regard it as probable, that few of the imbeciles alluded to in the objection, will exist ; and that these few will be carried along towards practical wisdom, by the multitude of generous and enlightened minds among whom they will be placed. The Creator is wise and good ; and as He has bestowed moral and intellectual faculties on all sane individuals, it cannot be his intention, that the majority of mankind should grub for ever in the mire of mere animal gratification.

At the same time there is great force in the objection, considered with reference to the present and several succeeding generations. In throwing out the views contained in these lectures, I embrace centuries of time. I see the slow progress of the human race in the past, and do not anticipate miracles in the future. If a sound principle, however, be developed—one having its roots in Nature—there is a certainty that it will wax strong and bear fruit in due season ; but that season, from the character of the plant, must be a distant one. All who aim at benefiting mankind, ought to keep this truth constantly in view. Almost every scheme is judged of by its effects on the living generation ; whereas, no great fountain of happiness ever flowed clear at first, or yielded its full stream to the generation who discovered it. The world scarcely yet enjoys the moral benefits of Christianity ; it is only developing its power, and hundreds of years may elapse, before its blessed spirit shall fully pervade all the transactions of human life. I do not expect to see the principles, advocated in these lectures, generally reduced to practice, in this age : but if they be founded in Nature, they will in time vindicate their own might.

It is now an established principle in political economy,

that Government ought not to interfere with industry. This maxim was highly necessary when governors were grossly ignorant of all the natural laws which regulate production and the private conduct of men : because their enactments, in general, were then abortions, often doing much harm, and rarely accomplishing any good. But if the science of human nature were once clearly developed, it is probable that this rule might, with great advantage, be relaxed, and that the legislature might considerably hasten the attainment of beneficial results, by adding the constraining authority of human laws to enactments already proclaimed by the Creator. Natural laws do exist, and the Creator punishes, if they be not obeyed. The evils of life are these punishments. Now, if the great body of intelligent men, in any state, saw clearly that a course of action pursued by the ill-informed of their fellow-subjects, was the cause of continual suffering, not only to the evil-doers themselves, but to the community, it appears to me allowable, that they should stop its continuance by legislative enactment. If the majority of the middle classes resident in towns were to petition Parliament, at present, to order shops in general to be shut at eight o'clock, or even at an earlier hour, to allow time for the cultivation of the rational faculties of the men and women engaged in them, it would be no reprehensible stretch of power to give effect to the petition : It would lead to no evil, if the ignorant and avaricious were prevented by law from continuing ignorant, and forcing all their competitors in trade to resemble them in their defects. If the Creator have so constituted the world, that men may execute all necessary business, and still have time to spare for the cultivation of their rational faculties, any enactment of the legislature calculated to facilitate the accomplishment of both ends, would be ben-

eficial and successful. It would be in accordance with Nature, and, although the prejudiced and ignorant of the present generation might complain against it, its results would justify its adoption. This principle of interference would go much further : its only limits seem to me to be the boundaries of the real knowledge of Nature ; for, so long as the legislature shall enact in conformity with Nature, it will be successful. At present, ignorance is too extensive and prevalent, to authorize Parliament to venture far.

## LECTURE III.

2. LET us now turn our attention to the Female sex, and inquire into the provision made for their education.

In these Lectures, I always assume that religious instruction is to be delivered by the clergy, and listened to by the people throughout life. The due fulfilment of religious duties, is implied, as the consequence of that instruction. As a layman, I do not consider it necessary to enter at large into this branch of education.

I regard the great secular business of female life, to be the nurture and rearing of children ; the due management of domestic affairs ; and the cultivation of those graces, virtues, and affections, which shed beams of happiness on all the members of the family circle. These occupations are equally important to women, as professions are to men ; and, under a proper system of education, women ought to be taught every species of knowledge, and instructed in every accomplishment, which may directly contribute to the proper discharge of their duties. At the earliest dawn of intellect and feeling, the little girl manifests the tendency of her nature towards maternity. The doll is then the most absorbing object of interest that can be offered to her attention. In maturer years, the mimic infant is laid aside, but the feelings which found delightful expression in the caresses bestowed on it, are not extinct. The nature of the woman, is the same as that of the girl ; the conventional fashions of so-



ciety may induce her to draw a veil over her affections ; but they glow internally, and it will still be among her strongest desires to give them scope in an honorable and useful field. If this be woman's nature, her education ought to bear direct reference to the cultivation and direction of it ; in short, next to religious, the maternal and domestic duties should be regarded as the leading objects of her existence, and her training should proceed in harmony with this great end. High physical, moral, and intellectual qualities, are necessary for the due fulfilment of these purposes ; and no occupations allotted to man afford a wider field for the exercise of the best elements of mind, than those here assigned to woman.

The physical quality of highest importance in a woman, viewed as a mother, is health. The human body is composed of a variety of organs, each having a particular function to perform ; and health is the result of the favorable action of the whole in harmonious combination. Every organ is disposed, other circumstances being equal, to act with a degree of energy in proportion to its size ; and as disease is the consequence either of under-action, or of over-action, their proportions to each other in size, are points of fundamental importance in regard to health. By the appointment of a wise Providence, a female figure of the finest proportions for symmetry and beauty, is, *ceteris paribus*, the most favorably constituted for healthy action. If the carriage of the body be erect, and the motions easy and graceful, these are indications that the bones are solid, and the muscles energetic ; that the blood is well nourished, and well oxygenized, and that it circulates freely. If the countenance beam with intelligence and goodness, this is an indication that the moral and intellectual regions of the brain predominate, and the individual in birth and constitution, is one of Nature's

nobility. Such a woman, if her intellect were instructed in the laws of physiology, so that she might maintain her high qualities, unimpaired, through life, would, as a mother, be a treasure of the highest value.

For many years, the lives of children depend almost exclusively on the care of the mother. Young women, therefore, ought to be taught, not only how to regulate their own habits, so that they may preserve their health and vigor, but also how to treat children, both as physical and mental beings. This information would be attended with great advantages, whether they subsequently discharged maternal duties, or not. The very study of the structure, functions, and proper treatment of human beings, with the view of exercising the kindly affections towards them, would be delightful in itself; and the young students, if they did not become mothers, would at least, be sisters, aunts, or friends, and could never want opportunities for the practice of their knowledge. Information of this description, is not neglected by women with impunity. It appears by the London bills of mortality, that between a fourth and a fifth of all the children baptized, die within the first two years. There is no example among the more perfect of the lower animals, of such a vast mortality of their young, where external violence is withheld; so that woman; with reason, and morality, and religion as her gifts, makes a poor figure in her maternal character, contrasted with the inferior creatures acting under the guidance of instinct alone. Much of this mortality arises from imperfect health in the parents, so that the children are born with feeble constitutions; but much is also directly owing to injudicious treatment after birth.

One important branch of female instruction, therefore, ought to be, the treatment of children as physical beings,

Lectures should be instituted to communicate this information, and the basis of it ought to be anatomy and physiology.\* The minutiae of these sciences need not be treated of, but the leading organs and their uses, on which health and mental activity depend, should be explained. It is a great error to suppose that this study is necessarily shocking and indelicate. It is so only in the eyes of ignorance and prejudice. Indelicate descriptions of *abuses* of the bodily functions, are highly objectionable; and the enemies of knowledge have represented this to be the instruction which I recommend. Nothing can be more unlike it. The Creator has constituted every organ of the body, and, in studying its structure and uses, we are contemplating his workmanship. To call this indelicate, is to libel Eternal Wisdom. The Creator has taught the inferior creatures to rear their young successfully by instinct; but he has not conferred this guide on the human mother. One of two conclusions, therefore, appears to follow. He has intended either that she should use her faculties of observation and reflection, in acquiring all the knowledge requisite for the proper treatment of offspring, or that she should recklessly allow a large propor-

\* "It is to the deplorable ignorance, even of persons of education, with respect to the structure and functions of the human body, and every thing which relates to health and disease, that we must ascribe the inability of such persons to distinguish between the rational practitioner and the quack. The higher classes, especially, hold regular physic and physicians of small account. Their idea of medicine is, that it is an art, a craft, a kind of *knack*, (to use a somewhat inelegant but not inexpressive word,) which some people are born with, or attain without study and by the mere felicity of Nature. If anatomy and physiology formed part of a good education, physic would reach its proper rank. But those who hang with ecstasy over stamens and pistils, or fragments of granite and spar, never seem to consider how noble and useful a subject for contemplation exists in their own frames."—*Foreign Quarterly Review*, No. xxiii. p. 119.

tion of them to perish. One or other of these conclusions is really inevitable ; because, as He has denied her instinct, and as she cannot obtain knowledge to supply its place, without application of her intellect to the study of the laws of Nature,—which instinct prompts the lower creatures to obey, without knowing them,—the Creator must have intended either that she *should* study these laws, or give up her offspring in vast numbers to destruction. The latter result actually happens, to the enormous extent just mentioned ; and, if it be the necessary consequence of the Creator's gift of reason, in place of instinct, to woman, I submit to condemnation ; but if it be the natural effect of her not having employed that reason in a proper direction, I say that He has commanded her to study his works. If this conclusion be just, we may rest assured that she may safely, and in perfect consistency with feminine delicacy, study the Creator's designs, power, and goodness, in the structure, functions, and adaptations of the human body ; and that she will not find her higher faculties outraged, but exalted and refined, by the knowledge which will thus be revealed.

Paley draws numerous arguments and illustrations from anatomy, in his treatise on Natural Theology ; and I have pleasure in referring to a work by Mrs. Phelps, entitled ' Lectures to Young Ladies, delivered to the pupils of Troy Female Seminary, ' United States, (Boston, 1833,) in which the pious and enlightened authoress does not scruple to introduce the kind of instruction here recommended.

It has been said, that it is better to call in the aid of a physician, than to study medicine for one's self. But I do not propose that young persons, in general, should study medicine. My recommendation is, simply, that they

should be taught the structure and functions of the body, with a view to preserving their health, to fit them to judge when it is proper that medical advice should be obtained, and to enable them to act like rational patients in the hands of a skilful physician, when they are so unfortunate as to fall into disease. Every medical practitioner, of a humane and honest mind, laments the unnecessary suffering and expense to which he sees his patients exposed, through lack of this information. The publication and sale of such works as Dr. Macaulay's 'Popular Medical Dictionary,' show pretty clearly that my views on this subject are by no means singular.\*

It may be imagined, that rules, for the preservation of health, may be taught, without anatomy being studied. But all such instruction is empirical. The authority of any rule of health, is the fact, that Nature is constituted in such and such a manner, and will act in her own way, whether attended to or not—for good, if obeyed, and for evil if opposed. This authority is rarely comprehended, without instruction concerning the foundation on which it rests. The rule, otherwise, resides in the memory, rather than in the understanding; and the possessor has no power of modifying her conduct, and adapting it judiciously to new circumstances. She knows the rule, only, and is at a loss whenever any exception or new combination not included in it, presents itself. The Professor of Scots' Law, most acutely and judiciously directed his students, when reading about the law of title-deeds, to take the parchments themselves into their hands, and to look at them; assuring them that familiarity with

\* Since these lectures were delivered and published, in 1833, the advice given in the text has been extensively acted on, in teaching Physiology to both sexes, and with the happiest effects. Some particulars on this subject, are mentioned in the Appendix.

their mere physical appearance, would aid the memory and judgement in becoming acquainted with the doctrines relative to their effects. Philosophy and experience equally confirm the soundness of this observation ; and it applies, in an especial manner, to rules relative to health. When a good description of the respiratory organs has been given to a young woman, she understands much better, feels more deeply, and remembers much longer and more clearly, the dangerous consequences of exposing the throat and breast to a stream of cold air or to a sudden change of temperature, than when she has only heard or read precepts to avoid these and similar practical errors.

Another leading branch of female education, should be that kind of knowledge which will fit a woman to direct, successfully, the moral and intellectual culture of her children. This embraces a vast field of useful and interesting information. If we should ask any mother, who has not studied mental philosophy, to write out a catalogue of the desires, emotions, and intellectual powers, which she conceives her children to be endowed with ; to describe the particular objects of each faculty, its proper sphere of action, the abuses into which it is most prone to fall, and also the best method of directing each to its legitimate objects, within its just sphere, so as best to avoid hurtful aberrations,—we know well that she could not execute such a task. I entreat any lady, who has a family, and who has derived no aid from mental philosophy, to make the experiment for her own satisfaction. She will discover in her own mind a vast field of ignorance, of which, before making trial, she could not have conjectured the extent. I have time only to say, that I regard the earnest study of Phrenology, or in other words, of the primitive faculties and their scope

of action, as an indispensable step in practical education. There are few mothers who do not sometimes discover wayward feelings, particular biases, or alarming tendencies breaking out in their children, when they least expect them ; and I appeal to their own consciousness, whether they have not, in alarm and bewilderment, wondered what these could be, and lamented their own inability to comprehend or to guide them. Mothers who have experienced this darkness, and have subsequently studied Phrenology, have appreciated the value and importance of the light which it shed on their practical duties. I am not pleading the cause of Phrenology for the sake of making proselytes. My proposition is general, that a mother cannot train faculties without knowing their nature, objects, and spheres of activity ; and if any woman can find practical information on these points without the aid of Phrenology, I earnestly recommend to her to seek it out and apply it. To Phrenology, I owe the views of human nature and its capabilities, which have most benefited and delighted my own mind ; but I am far from pressing it on others, who prefer to consider the mind as if it had no known connexion with organization. If Nature *has* connected it with organs, such individuals will meet with their reward in disappointment.

Let us now suppose a mother to be instructed concerning the physical constitution and mental faculties of her children ; she will find it expedient next to become acquainted with the objects in the external world, to which these faculties are related. We are told, that it is a "delightful task to rear the tender thought, and teach the young idea how to shoot." The power of doing so, seems to imply some knowledge in the teacher, of the direction in which the mind will tend to shoot, and of the objects which it will desire to reach ; in other words,

such acquaintancè with the external world, as will enable the mother to excite the moral sentiments and intellect of the child, and operate on the happiness of the future man or woman. In female training, the communication of this knowledge, is deplorably neglected. It implies the study of the elements of Chemistry, Natural History, and Natural Philosophy, as well as familiar acquaintance with the social institutions of our own country, and the civil history of nations.\* If an ill-informed mother have an acute and clever child, how is she puzzled by its questions ! and if she possess any natural sensibility, how keenly does she feel and regret her own ignorance, when it forces her to evade, instead of furnishing rational and instructive answers to its ingenious and interesting inquiries ! I earnestly recommend to such mothers, to attend, as speedily as possible, lectures on science, when within their reach ; for no kind of information, so much delights an inquisitive child, as that which unfolds the course of Nature.

The mother has it in her power to exert a great and permanent influence on the character of her children : she makes the deepest impressions, and supplies the earliest ideas that enter their minds ; and it is of the utmost importance to society at large, that she should be well qualified for so momentous a duty. Children who are not gifted with originating powers of mind, which is the case with nineteen out of every twenty, reflect slavishly, when they grow up, the impressions and ideas which their mothers, nurses, companions, teachers, and books, have infused into them ; and of these, the authority of the mother is not the least. “ It was said by one of

\* Since the first edition of these lectures was published, several successful institutions have been formed, to remedy these defects in female education. See Appendix.



the most extraordinary of men, (Napoleon,) who was himself, as he avowed, principally indebted to maternal culture for the unexampled elevation to which he subsequently rose, that the future good or bad conduct of a child, depends entirely on the mother.”\* Let women remember, therefore, that they may sow the seeds of superstition, prejudice, error, and baneful prepossessions ; or of piety, universal charity, sound sense, philosophical perception, and true knowledge, according to the state of their own attainments ; and let them also ponder well the fact, that the more thoroughly destitute they are of sound information, and of rational views of mind and its objects, the less they are aware of their deficiencies, and of the evils which their ignorance is inflicting on another generation.

In addition to the branches of solid instruction, before mentioned, women should be taught such elegant and refined accomplishments, as they individually are capable of learning. These, throw over the domestic circle a charm, which cannot be too highly prized. What I condemn, is, the teaching of music, drawing, and conventional manners, to the exclusion of all other kinds of knowledge. An enlightened, refined, and elegant woman, is the most lovely and perfect of animated beings ; and no philosopher, in recommending useful instruction, would desire to see abated, by one iota, the graces which adorn the female character.

These views may appear to be so consonant with reason, that they support themselves ; but as I am addressing a popular assembly, I solicit permission to strengthen them by the opinions of three contemporary authors.

\* Moore's Notices of the Life of Byron, 12mo. vol. ii. p. 35. Napoleon's proposition is too general. The father's qualities influence the child ; but those of the mother do so still more powerfully.

The evils attendant on the imperfect education of females, belonging to the upper ranks, are forcibly expounded in a late number of the *Foreign Quarterly Review*, (No. xxiii. p. 127.) "Nothing," says the Reviewer, "is more remarkable, in the present age of mental excitement, than the care with which, by most of the prevalent customs and a system of fashionable education, the minds of the generality of females are consigned to inactivity and utter uncompanionable insipidity. Whilst the expression of almost every elevated feeling is repressed, as inconsistent with refinement, every artificial want, every habit of selfish gratification, is as much as possible, indulged. Active exercise in the open air, cheerful country walks, a joyful participation of the hearty pleasures of any society, in which every movement is not taught by the posture-master, or conversation conducted according to the rules laid down in books professing to teach female duty and behavior ;—all this would be inconsistent with the general aim of all classes to imitate the manners and habits of the highest. All kinds of reading, except of works the most frivolous, is considered ungentle, or at least singular ; and any display of deep and unsophisticated sentiment, excites universal pity. The beauties of nature, the triumphs of science, the miracles of art, excite no more than a languid expression of wonder. To apply the mind to read or understand such things, would destroy the apathetic elegance which those desire to preserve, who still believe knowledge to be a very good thing for persons who live by it. With as much care as the natural proportions of the female figure are destroyed by stays, made upon abstract principles, is the mind cribbed and cabined by custom and fashion. Then, universal ambition leads to universal difficulties, as to fortune ; and the only serious duty as to

daughters is, to obtain an advantageous settlement, which, whether gained or missed, is too often thus the cause of cureless discontent, injured health, and all the nervous maladies incidental to an ill-managed mind and infirm body."

"The system, by which young ladies are taught, to move their limbs according to the rules of art, to come into a room with studied diffidence, and to step into a carriage with measured action and premeditated grace, are only calculated to keep the degrading idea perpetually present, that they are preparing for the great market of the world. Real elegance of demeanor, springs from the mind : fashionable schools do but teach its imitation, whilst their rules forbid to be ingenuous. Philosophers never conceived the idea of so perfect a vacuum, as is found to exist in the minds of young women, who are supposed to have finished their education in such establishments. If they marry husbands as uninformed as themselves, they fall into habits of indolent insignificance without much pain ; if they marry persons more accomplished, they can retain no hold of their affections. Hence many matrimonial miseries, in the midst of which the wife finds it a consolation to be always complaining of her health and ruined nerves."—(Ib. pp. 128–9.)

"Knowledge," says Mrs. John Sandford, "should be appreciated by women for its own sake, and not merely as a distinction. The superiority of cultivated women is in every thing very apparent. They have been accustomed to think and to discriminate, and their opinion is not a mere momentary impulse. Their sphere, too, is enlarged ; they are not so much actuated by selfish feelings, or so liable to receive partial, and consequently erroneous, impressions. What an easy dupe to empiricism or design is a half-educated woman !

With sufficient acquirements to be vain, and sufficient sensibility to be soon imposed on, she may be easily seduced from principles which she has received only on the authority of others, and which she is, therefore, ill prepared to defend.”—“Disorder is the accident, not the consequence, of talent ; and, as it is the more conspicuous, so it is the less excused, when accompanied with mental superiority.”

I conclude this branch of the subject with the following just and eloquent observations of an American authoress, Mrs. Emma Willard. It forms part of an admirable address, which she presented, in 1819, to the Legislature of New York, proposing a plan for improving female education ; and which address has led to the formation of an extensive establishment at Troy, of which she is now the head. “Not only,” says she, “has there been a want of system concerning female education, but much of what has been done, has proceeded upon mistaken principles. One of these is, that, without a regard to the different periods of life, proportionate to their importance, the education of females has been too exclusively directed to fit them for displaying to advantage the charms of youth and beauty. Though it may be proper to adorn this period of life, yet it is incomparably more important to prepare for the serious duties of maturer years. Though well to decorate the blossom, it is far better to prepare for the harvest. In the vegetable creation, Nature seems but to sport, when she embellishes the flower, while all her serious cares are directed to perfect the fruit.

“Another error is, that it has been made the first object in educating our sex, to prepare them to please the other. But reason and religion teach, that we, too, are primary existences ; that it is for us to move, in the

orbit of our duty, around the Holy Centre of Perfection, the companions, not the satellites of men ; else, instead of shedding around us an influence that may help to keep them in their proper course, we must accompany them in their wildest deviations.

“ I would not be understood to insinuate, (continues Mrs. Willard,) that we are not, in particular situations, to yield obedience to the other sex. Submission and obedience belong to every thing in the universe, except the Great Master of the whole. Nor is it a degrading peculiarity to our sex, to be under human authority. Whenever one class of human beings derives from another the benefits of support and protection, they must pay its equivalent, obedience. Thus, while we receive these benefits from our parents, we are all, without distinction of sex, under their authority ; when we receive them from the government of our country, we must obey our rulers ; and when our sex take the obligations of marriage, and receive support and protection from the other, it is reasonable that we too should yield obedience. Yet is neither the child, nor the subject, nor the wife, under human authority, but in subservience to the Divine. Our highest responsibility is to God, and our highest interest to please him ; therefore, to secure this interest, our education should be directed.

“ Neither would I be understood to mean, that our sex should not seek to make themselves agreeable to the other. The error complained of is, that the taste of men, whatever it might happen to be, has been made a standard for the formation of the female character. In whatever we do, it is of the utmost importance that the rule by which we work be perfect ; for, if otherwise, what is it but to err upon principle ? A system of education which leads one class of human beings to consider

the approbation of another as their highest object, teaches that the rule of their conduct should be the will of beings imperfect and erring like themselves, rather than the will of God, which is the only standard of perfection."

When I was in Berlin, in June, 1837, a member of the Council of the Minister of Public Instruction, for Prussia, told me that in one particular, the Prussian system of education appeared to him to be defective: In the lower schools, the girls and boys are educated alike; In the higher schools, (those which are attended chiefly by the children of the middle classes,) the boys are highly instructed in the elements of science, and the principles of the arts, but the girls are neglected. The consequence has been, that a generation of young men has grown up who do not find the females, of their own rank possessed of intelligence sufficient to render them objects of permanent respect, and domestic felicity has suffered, and is suffering a perceptible diminution from this cause. Whatever you do, in education—preserve the women on a footing of equality with the men. The influence of the mother, on the young mind, is far greater than that even of the father. The father is engaged in arduous toils, to provide for the subsistence of his family, and he may often have little leisure to communicate instruction. But the mother is the guardian, the constant companion, and the most efficient instructor of the young. But to enable her to answer the ceaseless inquiries of the child for information, you must provide her with knowledge, herself. To be able to rear her offspring with success, she should be instructed in their physical and mental constitutions, and in the influence of external agencies upon them. America boasts of chivalrous attentions to women. Let her not neglect their education.

On the whole subject of education, then, I remark, that if society were organized for instructing the people, and providing time and means for the exercise of their moral and intellectual faculties, as effectually as it is for paying taxes or fighting, the progress of civilization, and the amount of human enjoyment, would be greatly increased. The Lord Chancellor Brougham lately observed, that until the people shall take the matter of education with spirit and energy into their own hands, and with a resolution to accomplish something, Government will be incapable of doing any essential service to the cause. The Association, at whose request these lectures have been delivered, has been formed in anticipation of the recommendation implied in this remark. I solicit your attention to its objects and constitution, and hope that if these merit your approbation, you will favor it with your support.

**ACCOUNT OF THE EDINBURGH ASSOCIATION FOR PROCURING INSTRUCTION IN USEFUL AND ENTERTAINING SCIENCE; NOW NAMED THE PHILOSOPHICAL ASSOCIATION.**

In the autumn of 1832, a number of individuals of this city, chiefly engaged in practical business, who had attended my Summer course of Lectures on Phrenology, formed themselves into an association for the purposes of obtaining instruction in Useful and Entertaining Science. Associations for similar purposes had previously been founded in other cities, and had been partially successful, but not to so great an extent as might have been anticipated. The London University College, for example, is an institution for affording scientific education, particularly to the sons of persons resident in the metropolis, who prefer superintending their conduct in their

own houses, to sending them to Cambridge or Oxford ; but it has not met with the encouragement which its utility and importance deserved. In most of the great towns of England, there are literary and scientific institutions ; but they also have been attended with only limited success. In the absolute amount of instruction conveyed to the people, they have fallen greatly short of what they promised to accomplish at their foundation. In tracing the causes of these shortcomings, two, in particular, attract our notice. In these instances, large sums of money have been collected by subscription from wealthy individuals, and expended in forming buildings, libraries, and museums. The leading founders and directors have been rich merchants, patriotic landed proprietors, and a few men of science. They have provided money, lecture-rooms, apparatus—in short, every thing physical ; but they have not been equally fortunate in furnishing audiences to fill the lecture-rooms, and students to peruse the books piled in the shelves of their libraries. Whence has this last and important deficiency arisen ?

Men, in general, have appetites sufficiently strong to impel them, without external excitement, to seek supplies for the wants of their animal nature. Hunger and thirst press so keenly on the feelings, that the most thoughtless of mankind are prompted, by their importunity, to exert themselves to procure food. The piercing winds and the winter's frost, force them to provide raiment. But it is argued by some writers on religious and scientific education, that the case is quite different with our moral and intellectual nature. The human being, deeply buried in ignorance, has no painful consciousness of his condition ; he is stimulated by no self-acting desires to feed and clothe his mind ; he will remain for ever mentally destitute and naked, the passive victim of



his animal feelings, unless excited by the importunity of more enlightened men to cast aside his sloth.

The authors who espouse these principles, maintain the necessity of established Churches to teach religion, and of endowed universities to impart knowledge of philosophy and science. They represent clergymen and professors paid by the state, as staff-officers, and an army of aggression appointed to wage war on public apathy and ignorance. It is said to be the duty of the State-Clergy to go from house to house, and invade the dormant inmates ; to rouse them with the din of knowledge, and urge them to the banquet of religion. Having created an appetite for piety, these public heralds are supposed to present food fitted to every palate, and thus to Christianize the world. Professors and teachers, I presume, are expected to follow a similar course of action.

While this representation contains some truth, it does not appear to me, to be entirely correct. The appetite of the mass of the people for instruction, has never been fairly tried. By their external circumstances, they have been trained to fight, to labor, and to indulge in dissipation ; but rarely to seek enjoyment in the cultivation of their moral and intellectual powers. It would be as reasonable to state as an objection against human nature, that an individual trained as a divine, has little relish for agriculture or for law, as to urge as a plea against it, that laborers and artisans, whose mental powers have never been cultivated, but, on the contrary, have been blunted by their occupations, have no taste for literature or science.

Besides, the great body of the people have never had wholesome mental food presented to them, and their defect of appetite is prematurely assumed. If the foregoing views of the constitution of the mind and its adapta-

tions be correct, the objects best calculated to rouse the intellect and delight the moral sentiments, are those presented by Nature, in her various departments ; and knowledge of this kind has never been offered to the people and rejected. Drowsy and incapable teachers have too often administered husks and rubbish to the public mind ; and, because it has revolted at this dose, it has been charged with a distaste for all useful information. If the minds of practical men, *could* have taken a deep and abiding interest in Greek, Latin, scholastic logic, and metaphysics, I should have despaired of the progress of the race ; and yet, until almost the present day, the learned had little else to offer to their notice. That they have turned with distaste from these studies, is no better proof that they will dislike all knowledge, than the rejection of wormwood by a child is evidence that it will not relish sugar. Before the appetite of the people for knowledge, can be fairly estimated, they must be placed in external circumstances calculated to favor the activity of their moral and intellectual powers ; knowledge really related to their faculties must be presented to them ; and their teachers must be men qualified by nature and acquirements, to communicate useful information and command respect. Allow me to add, that the people have never had presented to them even a glimpse of the philosophy of their own nature, physical and mental ; so that, if there be any course of study or of action, written, as it were, in the constitution of man, and recommended by his Creator to attention, scarcely one word of that lesson has been read to the people. Teachers themselves were ignorant. Phrenology, for the first time, has supplied this information.

Even assuming the argument against the appetite of the people for instruction to be more sound than it is,

the proposed mode of supplying the defect does not appear to me to be altogether satisfactory. After the churches and colleges have been built, and ministers and professors endowed, the question remains, Who will arouse and collect the people for instruction? It is easy to say, that it will be the duty of these teachers to do so; but professors cannot, in consistency with the practices of society, go into the houses, the streets, and the by-ways, and expostulate with the people on their want of a moral and intellectual appetite, and importune them to come to the banquet of knowledge and be fed. They are remunerated by fees contributed by their students, and they cannot go a-begging for an audience, without having their motives entirely misinterpreted. Great obstacles lie in the way, even of the clergy, pursuing such a course. There are various sects in religion, and various shades of belief. The families who differ from the state-minister will not voluntarily accept of his invitation; and if it be too anxiously urged upon them, they will repel it. If the clergy of every sect shall become active belligerents in favor each of his own opinions, they will convert the world into a theatre of theologic war, and the minds of men will become the prize of the acutest wrangler. The decorum of the clerical character requires a modest, calm, and dignified deportment, unlike that of solicitation and importunity. Yet, unless there be prompters to enforce attendance, or unless the appetite already exist to induce the people spontaneously to repair to the portals of the church, or the halls of the university, the richest viands for the mind may be spread there, and no guests be found to enjoy their delicious savors. Accordingly, we perceive, that, after the London University College has been reared, and many institutions for education have been completed, the students

are few, and the good accomplished is limited. The citizens, educated in words alone, are unbelievers in the existence of valuable information, and proceed in their wonted rounds of labor and money-getting, unconscious of the value of science, and without a motive to engage in its study. Some provincial institutions for the scientific instruction of the industrious classes, have shared a similar fate. They have perhaps been frequented for a short time, while novelty and influential names produced excitement ; but have too soon been deserted by those for whose benefit they were reared. For these unfavorable results, I blame the stinted education given to the existing generation in their primary schools. This left them skeptics concerning even the existence of useful knowledge, and defrauded them of all taste for its advantages and sweets.

It is true, then, that, in the present state of society, there is a vast body of men, who, from their circumstances and training, feel no spontaneous impulses towards improving their moral and intellectual nature, and who, if provided with food, clothing, shelter, and amusement, desire little else. But there are also among the people, many gifted spirits, whose native energies have enabled them to surmount all the obstacles presented by imperfect education to the expansion of their minds, whose moral and intellectual faculties long for knowledge, for refinement, and for improvement in virtue, as keenly as their bodily appetites burn for their proper gratifications. These individuals have struggled hard for the food of the mind : and they have generally obtained it. They not only desire to advance themselves, but they feel a call within them to become apostles or missionaries, to excite their less vivacious and intellectual brethren to improvement. This appears to me to be the

class instituted by Providence, for successfully inviting the unwilling guests to the banquet of knowledge.

All institutions which have hitherto been formed, so far as I am aware, have omitted to invoke the cooperation of these important auxiliaries. Bankers, merchants, and landed gentlemen, whose consequence and influence originated in, and depended chiefly on, wealth, have been the founders and directors of most of the existing institutions ; and by rank, habits, feelings, and inclinations, they were far removed from the class of slumbering minds who stood in need of being awakened.

The Association, whose cause I now advocate, is founded on better principles. If we wished to institute a bank, or an insurance company, we would apply to the richest, most experienced, and most respectable citizens, for their subscriptions, names, and influence ; just because the skill of such men would constitute the soul, and their wealth the substance, of such associations. But if our object were to form a society for convincing ill-educated men and women of the evils of ignorance and the advantages of knowledge, and for urging them to send their sons and their daughters to school to be taught ; and if we acted on the principles which sagacious men follow in the formation of trading companies, whom should we select to become the members and directors of such an association ? Not, certainly, gentlemen who have attained eminence in trade, without being conspicuous for their general knowledge ; not persons distinguished for wealth, but destitute of liberal ideas ; nor even philosophers, devoted exclusively to science, and far removed by their habits and pursuits from familiar intercourse with the busy, but ill-educated, sons of commerce : No ;—we would give such an association a body and a soul suited to its proper objects, and then we should

succeed. These are to be found only among the men, whatever may be their rank or wealth, to whom Providence has given the noble inheritance of vigorous moral and intellectual faculties ;—persons who have had the appetite for knowledge bestowed by Nature, without having had instruction placed before them by fortune, independently of their own exertions : men whose minds rejoice in having been the architects of their own education ; who know what it is to have been ignorant, and to have burned with the desire of instruction ; and who, through many difficulties, have acquired a considerable portion of useful knowledge. An association, composed of such individuals, will do much good, on apparently small means. They will form a nucleus, round which all interested in the welfare of the rising generation may gather together. From observation and experience, they will be capable of judging what kind of instruction will be most relished, and what lecturers will best communicate it. A few years ago, some of the Professors of the University of Edinburgh most laudably gave popular lectures on their sciences to the higher ranks, but failed in securing audiences after the first and second years. On inquiring into the causes of their want of success, I was led to believe, that these were two. 1. The individuals who attended, were, in general, not actuated by any real love of science, but chiefly by the impulse of fashion. 2. The Professors did not put forth their strength to simplify the sciences to the understandings of their audiences, with the purpose of giving them useful information. They addressed chiefly the imagination and wonder of their hearers ; they astonished and amused them ; but left no permanent impression of advantage resulting from the studies. Many minds are capable of teaching a subject scientifically, who cannot impart prac-

tical and popular views of it ; and only those who possess the latter gift, will succeed in permanently commanding the attention of a general audience.

The present Association proceeds on different principles. Its lecturers keep solid instruction, and the enlargement of the minds of their hearers, constantly in view, as their leading objects ; adding graces and ornament, only in so far as these are compatible with the main ends.

The members and directors of this Association, then, are men engaged in the business of the world, yet ardently alive to the advantages of education, and desirous to induce their fellow-citizens to embrace all opportunities of acquiring it. They are connected by relationship, friendship, and business, with the very classes who require to be roused and induced to come to the halls of science. They are not themselves teachers or lecturers, and are consequently at liberty to importune, advise, and plead in favor of knowledge, in a way that no professor can possibly do, to induce hearers to come to his prelections. They are at all times witnesses of the impressions made, and are much better aware of the kind of information wanted, than any established authorities, moving in a higher sphere, and holding only a formal communication with ignorant inferiors.

The Directors are regularly changed, transmitting the active management to the young and rising of each generation. It would be fatal to the project, if the same individuals were retained constantly in office. Their zeal would flag ; the circle of their influence would be exhausted ; and drowsiness would seize upon all the movements of the society.

Another advantage of an association of this kind is, that it affords instruction cheap. The industrious classes

are so numerous, that if they will only act in combination, there are no mental advantages which wealth can command that they may not attain. As a lecturer, I can certify that, independently of gain, it is far more animating and agreeable to lecture to one hundred than to twenty hearers, and more exciting still to address two hundred than one hundred. By bringing forward an audience of two hundred or three hundred, therefore, the lecturer will be remunerated by a comparatively small contribution from each, and have his pleasure in teaching greatly increased.

This Association differs in its objects from the School of Arts, and has succeeded without interfering with it. The School of Arts is designed chiefly to afford scientific instruction, which may aid operative mechanics in their trades ; the present Institution embraces a more extensive range. There are numerous classes of merchants and traders, besides females of every rank, to whom the instruction provided at the School of Arts is too technical to be useful ; and for them chiefly is this Association intended.

An objection may be urged, that only superficial knowledge can be communicated in the proposed lectures, and that the tendency of such instruction is to encourage pedantry and discontent. The line of Pope, that "*a little learning is a dangerous thing,*" is often quoted in opposition to all proposals for instructing the industrious classes. There is much force in this objection, if learning be confined to mere reading and writing ; but it is pointless when applied to instruction in Natural Science, which is the kind of knowledge in favor of which I am now pleading.\* "*Learning,*" in Pope's time, meant an

\* "*It would be easy to show,*" says Dr. Caldwell, "*that, under the government of the United States, a very limited amount of school-learn-*



acquaintance with Latin and Greek, and with the barbarous jargons of logic and metaphysics, which constituted the chief stock of knowledge of educated men in his day. Science has, to a great extent, been created since

ing, diffused among the people, is calculated, politically speaking, to injure, rather than to benefit them. I allude to that degree of attainment which qualifies them merely to read newspapers, and understand the meaning of what they contain, without enabling them to judge of its soundness. A people only thus far instructed, are in the fittest of all conditions to be imposed on and misled by artful demagogues and dishonest presses. When party spirit runs high, and the political passions become inflamed, they are induced, by intriguing men, to read papers only on one side of the question. The consequence is plain. Not being able to judge of the truth of the matter laid before them, as respects either the fitness of men, or the tendency of measures, they are liable to be seduced into the most ruinous courses. Were they unable to read at all, or did they never see a newspaper, their condition would be less dangerous. Demagogues would have less power to delude and injure them. In the present state of our country, it is emphatically true, as relates to the great body of the people, that

‘A little learning is a dangerous thing.’

“The only remedy for the evil consists in the *reformation of the public presses, or the diffusion of more learning, knowledge, and virtue among the people.* The former, it is to be apprehended, is not soon to be looked for. On the latter alone, therefore, rest the fate of our government, and the hope of our country. Let the community at large be taught to think correctly and feel soundly, and they will not only have a secure protection against the falsehood and corruption of the presses; these sources of mischief will cease to be encouraged. They must then choose between *reformation and extinction.* At the present moment, some of our public presses are the arch-engines of evil to our country, and a disgrace to the human character.”—*A Discourse on the Advantages of a National University, especially in its Influence on the Union of the United States; delivered September 25, 1832. By Charles Caldwell, M. D.* America owes a great debt of gratitude to Dr. Caldwell for his admirable Treatises on Popular Education. Many excellent views are presented, also, in ‘Hints on a System of Popular Education, by E. C. Wines, Philadelphia, 1838.’

I consider entire ignorance as more dangerous than partial knowledge.

the time of Pope ; and it has been brought within the reach of the industrious classes only within these twenty years. His remark, therefore, is wholly inapplicable to instruction in useful knowledge. *A little* of such knowledge is better than *none at all*, on the same principle that it is better to have one penny, than to be entirely penniless. A man who has learned two facts, is wiser than he who is acquainted with only one. And if the instruction be useful, the smallest quantity cannot possibly injure, while it may create an appetite for more.

I deny, however, that the knowledge communicated, will necessarily be superficial. If the directors and the lecturers do their duty, solid and extensive instruction in the great leading principles of the sciences, may be communicated in popular lectures. An intelligent student of geography may be very far behind a practical surveyor in his knowledge of the localities of a particular county, every acre of which the surveyor has measured and delineated ; but his knowledge of the relative positions of all important places, may still be accurate, extensive, and useful. The popular student of anatomy and physiology may be far short of the skill which would enable him to tie an artery, or to amputate a limb ; but he may still possess precise and valuable information, concerning the structure and functions of the great organs, on the proper condition of which health and life depend ; and he may understand and be able practically to apply the principles thus unfolded. Lectures have also a very beneficial influence in communicating to the mind an interest in any science treated of, and a familiarity with its general principles, which enable the student to pursue his studies in it in private, with a zeal and facility which could not otherwise be attained.

It has been urged against popular instruction, that, by

communicating a smattering of knowledge to all, it will prevent the growth of great geniuses and profound philosophers ; in short, that we shall have a superficially learned society, but no masters in science. This is the argument of a common-place mind, which has acquired celebrity by arduous study of other men's thoughts, and which dreads the approach of the vulgar to its shrine of self-importance and conceit. There is a simple answer to the argument. Genius either *is*, or is *not*, necessary to reach the profundities of science. If it be necessary, —then my argument is, that genius is an inherent quality of a few gifted minds ; it goes on in its own way conquering and to conquer ; it rejoices in the fellowship of human beings, although their progress be but a furlong, while its advances are a league ; its power is within itself, and it is not impeded by the presence of a multitude moving in the same direction. It is cheered by their proximity, animated by their applause, and feels more confident of its reward, in proportion as they become capable of appreciating its achievements. Genius, therefore, will not stop short in its high career, because the denizens of the busy world are gazing at its progress in fond admiration, and advancing in the same path, although at a vast and perhaps an impassable distance. If genius be not necessary to profound acquirements in philosophy and science, then the higher the common standard of attainment is, the further ahead must those proceed who desire to hold a prominent station in public esteem. All the motives of interest and ambition by which common minds are actuated, increase in proportion as the class is numerous and enlightened, by which the prizes are awarded. This objection, therefore, has no solid foundation.

It has also been maintained, that the study of science

incapacitates the mind, or at least gives it a distaste, for business. This is an important objection, and demands serious consideration. What should we say to the assertion that the practice of walking unfitted a man for running ; or that the habit of eating wholesome food had a great tendency to impair the digestive organs ? We should laugh at such absurdities : because a man runs by means of the same bones, tendons, and muscles by which he walks ; and walking is the moderate, natural, and healthy exercise of those parts ; so that while it may well augment his capacity for running, it cannot possibly impair it, unless carried to excess. Wholesome food also, is the natural stimulus of the digestive organs, and, if used in moderation, it is the best prescription for preserving them in health ; and, in point of fact, there can be no vigor in the function, if it be withheld. Now, the Creator has constituted external nature and the moral and intellectual faculties of man, and adapted them to each other, with the same wisdom which He has manifested in adapting the stomach to food, and the muscles to the law of gravitation. The effects of knowledge are, to strengthen the understanding and to enable it to act vigorously ; and to judge soundly of the things and beings with which it is dealing. A man transacts business by means of the same mental faculties with which he studies useful science. The moderate pursuit of science, therefore, has the same tendency to strengthen, improve, and gratify the mental faculties, that the use of wholesome food has to benefit the digestive functions. It is absurd, then, to assert either that the study of nature is *not* calculated to strengthen these powers, or that a study which *is* calculated to strengthen them, unfits them for business.

Facts also support these conclusions of reason. The Rev. J. R. Bryce, of the Belfast Academy, certified

from experience, that boys engaged in studying Natural History and Languages, mastered their lessons in the latter with greater alacrity than did boys who learned languages exclusively : and a successful private teacher in Edinburgh, has declared to me, that those among his pupils who are permitted to attend to science, outstrip those who do not, even in the study of Greek and Latin.

The sources of the prevalent errors on this head can be easily traced. If young persons give themselves up to the excessive and exclusive study of works of fiction and imagination, they impair their relish for, and also their powers of conducting, practical business ; because works of fiction are addressed much more to the propensities and inferior sentiments, than to the moral and intellectual faculties. The recital of horrors exercises Destructiveness, the description of wild and mysterious events arouses Wonder, Cautiousness, and Secretiveness ; but these are not the chief faculties by means of which business is transacted. When these faculties become highly active, the transition to sober observation and reflection is painful, and business is disliked. The *exclusive* study of the Fine Arts, even, is not favorable to the formation of business habits. Painting, poetry, sculpture, and music, exercise Ideality, the moral sentiments, and several of the intellectual powers ; and unquestionably communicate to these refinement and susceptibility : but they leave many of the subordinate feelings, and some of the reflecting faculties uncultivated ; while the objects with which they are chiefly conversant, belong to the world of imagination. The study of the Fine Arts, therefore, when exclusive, both unfits the faculties for practical business, and withholds ideas connected with worldly affairs. Many persons, from observing the injurious effects of an excessive devotion to

those pursuits on the mind's aptitude for serious study, have concluded that every species of mental exercise that is not laborious and disagreeable, must have a similar effect, and that therefore science also is apt to obstruct the formation of habits of energetic application. But the cases are widely different. The kind of exercise which the study of the natural sciences gives to the mind, is closely analogous to that which it employs in the discharge of practical business, and the same consequences do not follow from it as from the pursuit of works of imagination. Those persons, therefore, who imagine that they have facts in support of the baneful influence of scientific instruction on the mind in unfitting it for business, confound science with fiction.

But there is one effect of the study of science, which I am prepared to admit. When the mind has been opened up to the designs of Providence, as displayed in creation, and has learned to draw its best enjoyments from contemplating their excellence and grandeur, and taking a part in their execution, there will be a distaste for excessive and exclusive money-getting, and for the present long and toilsome hours of attendance at the manufactory, the shop, and the counting-house. These will be felt to be inimical to man's moral and intellectual progression, and be restricted. This result I hail as a positive advantage, believing, as I do, that all our wants may be amply supplied, and that time may still be left us to cultivate and enjoy our rational powers. Should this result follow in the course of ages, it will be an example, not of study producing incapacity for business, but of moral and intellectual enlightenment regulating the plan of life, and reducing it into conformity with the constitution of our rational nature.

The class of persons who would be benefited by the

lectures which this Association will bring forward, is one of great importance. They have votes for members of Parliament, and exercise political power. From among them are chosen the managers of many of the Hospitals for educating children, both male and female, in this city. They become commissioners of Police, and in that capacity superintend all public measures for increasing the health and comfort of the citizens. They are elected members of the Town Council of Edinburgh, and become the patrons of the City's public schools, of the High School, of most of the Chairs in the University, and of the City churches.\* Society is at present in a state of visible commotion. Old ideas, and habits, and practices are fast disappearing, and the public mind is bounding forward eagerly in search of new and untried institutions. Is it not the interest of all, that sound knowledge of physical science and the nature of man, should be diffused among all ranks, and particularly among that class which is respectable by its morality, and influential by its property, and which requires only intellectual information, to render it at once the ornament and safeguard of the state? Mechanics' Institutions provide instruction in science for operative tradesmen; and the Universities open their gates for the aristocracy; but females of all ranks, and the middle classes of citizens, although at least as important and interesting from their numbers,

\* One of the first consequences of the instruction of this class of the community in science, will probably be the reformation of the primary schools of this City, and the second, if not simultaneous with the other, will be the ventilating of the churches and public rooms; in both of which matters the profound ignorance of the last generation continues to inflict much evil on the present inhabitants of Edinburgh. *First edition.*—Since the foregoing note was written, in 1833, a good deal has been done in Edinburgh to remove the evils of defective ventilation in public rooms.

their position, and their wealth, as either of the other two, have hitherto been overlooked. They are now pursuing the only course that can conduct them to an equality in point of knowledge with the classes above and below them in the social scale,—coming forward to provide the means of instruction for themselves. This is precisely what they ought to do. They possess among themselves too many well-informed, able, and active men, to render it necessary for them to go into leading-strings under the great in literature and science ; and too much wealth to permit them to solicit pecuniary aid from any individuals out of their own circle. They come forth, therefore, in their own strength and might, conscious that, by union and cooperation, they can accomplish their own intellectual regeneration. Edinburgh stands preeminent in literary and philosophical reputation among the cities of the world ; but she would place a still more noble crown of glory on her head, could she boast of industrious citizens combining talents for every species of practical usefulness, with refined taste and cultivated understandings. She would then become the preceptress of the world ; and prove, by her example, that labor, intelligence, morality, and religion, go hand in hand in promoting the highest enjoyments of man.

In these Lectures, then, I have endeavored to show, that man is a progressive and improvable being ; that he is permitted to some extent to control the external elements and apply them to his advantage ; that where this power is denied, he may, by observing their operation, accommodate his conduct to their influence ; that, to do either, knowledge of nature and its qualities is indispensable ; that the command to acquire knowledge is thus written in his constitution ; and that discoveries in



science, and inventions in art, are intended to give him leisure for studying nature, and for cultivating his moral and intellectual faculties. This Association is founded in the spirit of these views :—let us hold out to it the hand of encouragement, and promote its success.

NOTE.—Since the foregoing Lectures were put in type, a friend has sent me the following information :—  
“ It is curious that, at this moment, the *Statuta Solennia* of the University of Edinburgh for the degree of M.D., should for the first time appear in an *English* dress. An adequate knowledge of Latin is still, of course, required ; but if the graduate show that he can easily read Celsus or Cicero de Natura Deorum, no more is demanded : the great examination goes on in English, and the modest student is no longer perplexed by having to think and speak in a dead language.”

*Edinburgh, November, 1833.*

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## POSTSCRIPT TO THE SECOND EDITION.

### REMARKS ON PRIZES AND PLACE-TAKING IN SCHOOLS.

THE question has been much agitated, whether it be expedient to use prizes as a stimulus to exertion in education. I beg leave to offer a few remarks on the subject, leaving the reader to decide for himself.

The natural rewards for exerting each faculty are, *first*, The pleasure attending the exercise of the faculty itself ; *secondly*, The value of the objects which it de-

sires, when attained ; and, *thirdly*, The consequential advantages which may result from that attainment. Thus, a highly gifted musician derives intense pleasure, directly from exercising his talents ; by cultivating them he lays up a store of enjoyment for himself, on which he may draw at pleasure ; and he may also obtain admiration from the public, and fortune, if he choose to dedicate his abilities to their gratification.

In some children certain faculties enjoy high spontaneous activity, and the pleasure and natural advantages attending the exercise of them, suffice to render them as active as any rational teacher or parent would desire. If a child, for example, have a great natural talent for languages, he will learn to read with facility, and experience great pleasure in reading. Books and study will be his delight, and in many instances it will be more necessary to offer him a recompense for giving up this pleasure and resorting to play for the benefit of his health, than to stimulate him by honors and prizes to greater mental application. The same remarks apply to children who have great natural talents for drawing, or calculation, or mechanics, or natural history, or any other pursuit. They will study in the direction of these faculties with an ardor and a relish that will render all extrinsic rewards superfluous. For such children, therefore, prizes, as a stimulus, are altogether unnecessary.

There are other children, however, who have very little natural talent for particular branches of education, which their parents wish them to learn, such as languages, or arithmetic, or mathematics ; and as they do not experience any direct pleasure in such studies, teachers have resorted to punishment for deficiency, and prizes for proficiency, in the prescribed exercises, as motives to exertion. It cannot be denied that these have a cer-

tain effect in promoting the attainment of the end in view. A boy with a moderate talent for languages will not study Greek and Latin for his own gratification ; whereas he may be induced to do so, by receiving a severe beating if he fail, and a gold medal if he succeed, in saying certain lessons.

Even the advocates of prizes, therefore, should, in consistency, confine the application of them to the object of drawing forth exertion from children, in studies to which they are not naturally inclined, but which it is reckoned advantageous for them to follow. The indiscriminate administration of them is thus clearly erroneous.

Prizes are of two kinds ; either marks of personal distinction, such as high places in a class, or medals worn for a day ;—or property, such as books, sums of money, or medals of gold and silver, bestowed on the individual as gifts.

The value of the former, namely, places and decorations, consists in the gratification which they afford to the self-love and vanity of the wearer. They mark, not that he is a good scholar, but that he is the best, compared with his fellows, who may be all indifferent in their acquirements.

Two obvious objections present themselves to prizes administered in this form. The essence of the gratification consists not in the attainment of an object valuable in itself, but in a feeling of personal superiority over a neighbor. The circumstance which makes a child dux, or brings him the decoration of a medal, is not the actual possession of a certain quantity of useful knowledge, or of learning, but the accident of the other children in the class with him being more stupid, or less diligent than himself. The mind of the child does not always con-

template the medal as the certificate that he has acquired a certain amount of information, but often as the symbol of a personal triumph over all the other children in his class. It therefore fosters pride, envy, and selfish ambition, feelings which are naturally strong, and need to be repressed, and it does not in any appreciable degree cultivate the love of knowledge for its own sake, which is the legitimate object of education. I have known children in whom these passions were strong, bribe their more talented school-fellows, in whom they were less energetic, by giving them money, or playthings, to resign high places and medals in their favor. They carried home the trophies thus acquired, and were lauded by their parents for their genius. This was a direct cultivation of falsehood and cunning, in addition to vanity and pride, in the children, and was calculated to exercise a baneful influence over their future lives.

Prizes administered in the form of donations of books, money, or other kinds of property, do not necessarily imply the depreciation of other competitors, and in so far are unobjectionable. If they are offered, not as insignia of triumph over them, but as rewards for exertion, they appear much in the same light, as fees paid to artists, and to men of talent in the professions of the law and medicine, which assuredly stimulate them to diligent application.

Great evils attend the prevalent system of administering prizes, some of which may be briefly noticed.

*First*, In place-taking, the competition is directly personal, and the reward of the successful child is founded on the humiliation of his less successful fellow. In this practice the attention of the competitors is very little drawn to the value of the lessons themselves ; their minds are strongly agitated by the passions of ambition, envy,

and hatred. Place-taking, therefore, appears to be calculated to throw into the shade the natural advantages of knowledge, and to cultivate some of the worst passions of our nature.

*Secondly*, In place-taking, and in the usual method of awarding prizes, the reward is frequently assigned to those individuals who have least merit. If one boy enjoy from nature a great aptitude for learning languages, with a vivacious temperament, and another possess only a moderate endowment of that talent, the latter may have sacrificed more hours of play and pleasure in getting his lessons, than the former, yet the clever boy shall reap the prize and the glory of scholarship.

*Thirdly*, At the time when I was educated, punishment, place-taking, and prizes, were, to a great extent, relied on as superseding the duty on the part of the masters of *teaching* the scholars. Our lessons were prescribed, and we were left to *learn* them as best we could ; being flogged, confined, and put down places, if we failed to say them ; and praised, put up, and let out of school early, if we were expert in our tasks. This rendered the school literally a place of punishment, and this character of it seemed to be recognised by the teacher also, when he rewarded us by abridging the hours of our confinement in it. I do not know whether this practice still lingers in any schools ; but I fear that it does.

*Fourthly*, The prevalent system of place-taking and prizes obscures the perception in both teachers and pupils, of the natural sweets and advantages of knowledge. From experience and observation, I am satisfied that to the great majority of children, a school may be rendered a scene of delightful occupation. A well conducted infant-school, in which the moral affections are exercised, and the intellectual faculties instructed in objects

adapted to their constitution, is resorted to by most children with positive pleasure ; and the majority of young men follow courses of instruction in science with a degree of zeal which shows that they are reaping a great pleasure, and not supporting a severe burden. If place-taking, medals, and prizes, were abolished at ordinary schools, it would soon be discovered that a number of the branches taught, as well as the methods of instruction, are deficient in real interest : it would be found impossible to induce the scholars to make adequate exertions to learn ; and the consequence would be, that teachers would be prompted by necessity to select branches of knowledge, and methods of instruction, calculated to benefit the youthful mind, and thus improvement would be forced upon both teachers and pupils.

*Fifthly*, A considerable number of excellent and successful schools are now conducted without place-taking, with the best results both on the moral dispositions and the intellectual habits of the children, a fact which shows that the natural advantages of knowledge are sufficient to induce exertion for their attainment when judiciously presented to the youthful mind.

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In the Appendix will be found an account of the Edinburgh Philosophical Association, and also of two of the most improved seminaries in Edinburgh for female education. A description is also given of an improved method of teaching drawing for practical purposes, for which I am indebted to the kindness of John Robinson, Esq., Secretary to the Royal Society, Edinburgh. These notices will be found well worthy of perusal.

*Edinburgh, 16th January, 1837.*



## APPENDIX.

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### No. I.

#### SUMMARY OF THE PROCEEDINGS OF THE ASSOCIATION FOR PROCURING INSTRUCTION IN USEFUL AND ENTERTAINING SCIENCE, AFTERWARDS NAMED THE EDINBURGH PHILOSOPHICAL ASSOCIATION, FROM ITS INSTITUTION IN 1832 TO 1ST JUNE, 1836.

IN the summer of 1832, several individuals engaged in mercantile and trading avocations, and who were then attending Mr. Combe's evening Course of Lectures on Phrenology, expressed a strong desire for a more extended course during winter, along with lectures on some other subjects of Natural Science. With this view, they resolved to form themselves into an association for procuring such instruction, at convenient hours, and on moderate terms; and in order to make the Public acquainted with their intentions, as well as to ascertain the support likely to be obtained, they printed and circulated the following "Proposal for Courses of Lectures on Natural History—Chemistry—and Phrenology combined with Physiology."

"The want of the means of obtaining a general knowledge of these sciences has long been felt by the Middle Classes of society. Hitherto they have possessed few opportunities for becoming acquainted with a mass of highly useful and interesting information, which it would be the object of these Lectures to communicate, and which, in its numerous applications to the purposes of life, is calculated greatly to improve our physical, moral, and intellectual nature.

"The regular lectures delivered on the subjects before mentioned—besides being inaccessible to *Females*, and being delivered at hours inconvenient for persons engaged in ordinary business—are too purely scientific, too little applicable to the advancement of individuals in



general knowledge, and also too expensive, to benefit the unprofessional student. A wide field of usefulness therefore lies open, which may be successfully occupied by skilful teachers, if duly encouraged by the public.

“It is unnecessary to enter into a lengthened statement of the advantages of a knowledge of the sciences above named. To those who have been longing for such an opportunity as is now offered to them, the mere proposal is enough ; but to others who may have been hitherto indifferent about such matters, or who would seek nothing more than amusement after closing their daily labors, it may be proper to state, that the branches which are included in the proposed Courses, afford an inexhaustible supply of the most varied and interesting *amusement*, as well as *instruction*. Natural Science possesses charms to interest both the old and the young, the learned and the unlearned ; and were the simple and beautiful laws, by which the whole of nature is held together, more studied and better understood than they generally are, how differently, indeed, would the world be looked upon, and with what innocent, profitable, and lasting pleasures would those hours then be spent, which are now too often trifled away in frivolity and *ennui*, or dissipation.

“To some it may appear strange, to many it may seem even ridiculous, to see Phrenology in the list of the proposed studies ; but the projectors of this Course are persuaded, that Phrenology is the only philosophical system which has any claim to the character of a true theory of human nature, and that exhibits man in his true relation to the other beings of this world. While, therefore, two of the departments of the Lectures, Natural History and Chemistry, are intended for instruction in the nature of inorganic or lifeless substances, and of organic and animal beings,—the projectors look to Phrenology, combined with Physiology, for the most important of all scientific information—the knowledge of a man’s nature as an organized, animated, and moral being. Without this, and a knowledge of the relation in which man stands to other beings, the proposed Lectures would be imperfect ; and, judging from what they have lately seen—the continued interest with which Mr. COMBE’S Evening Lectures on Phrenology have been attended, as also from what they have heard of the interest taken in similar lectures, recently given at the London Mechanics’ Institution, and elsewhere—the projectors flatter themselves that this part of the proposal will meet with very general approbation among those persons for whom the Courses are intended.

“While, however, it is considered of importance that all the three

departments of the Lectures should be attended, it will be left to the choice of Subscribers, to attend any one or more at pleasure." And with this view, the following fees were fixed :—For Geology alone, 7s. 6d. ; Chemistry alone, 10s. 6d. ; Phrenology and Physiology alone, 10s. 6d. ; Geology and Chemistry combined, 13s. 6d. ; Chemistry, Phrenology, and Physiology, combined, 15s. ; Geology, Chemistry, Phrenology, and Physiology, combined, 20s.—All the tickets transferable.

Detailed abstracts of receipts and expenditures have been since annually published by the Association, of which the following is a summary :—

"TOTAL RECEIPTS FOR 1832-3.

CLASSES.	Tickets sold.	Visitors admitted at 6d. each.	Receipts.
Phrenology, . . . .	225	993	£.115 16 4
Chemistry, . . . .	229	387	100 7 9
Geology, . . . .	251	142	73 2 2
Three Lectures on Education, given separately in April, 1833, . . . .		242 at 1s.	12 2 0
Botany, day class, . .	60	33 do.	38 5 0
Botany, evening class, .	192	163	75 12 0
Three Lectures on Education, given in November, 1833, (in addition to the holders of tickets to any of the other classes, who were admitted to the Lectures on Education free,) . .		340	8 10 0
Natural Philosophy, . .	239	197	101 0 3
Astronomy, . . . .	298	114 at 1s.	105 19 6
Physiology, . . . .	294	166	89 11 6
	1788	2777	£.720 6 6
Paid to Lecturers, and other charges, . . . .			609 6 6

Surplus at January 16th, 1834, . . . . £.111 0 0

From the above date, 5th April, 1835, 40 additional tickets were sold, and 387 visitors admitted,—being in all, 871 tickets disposed of, and 1184 visitors admitted, during winter 1833-4.

During the session 1834-5, lectures were delivered on Phrenology, by Mr. Combe ; on Natural Philosophy, by Mr. Lees ; and on Physiology, by Dr. Allen Thomson ; besides a gratis course of Six Lectures on Sidereal Astronomy, by the Rev. J. P. Nichol.

For these courses collectively, there were 631 tickets sold, and 1609 visitors admitted at 6d. each.

The total sum received, was £.289, 17s., and the expenditure £.252, 18s. 9½d, leaving a free balance for that session of £.36, 18s. 2½d.

In the course of the session 1835-6, there were delivered twenty lectures on Moral Philosophy, by Mr. Combe ; fifty on Chemistry, by Dr. Fyfe ; and twenty-five on Astronomy and Geology, by the Rev. J. P. Nichol, since appointed to the Chair of Astronomy in the University of Glasgow.

There were sold 463 tickets at £ 1, 1s. each, admitting to all the lectures ; 63 to Moral Philosophy alone ; 40 to Chemistry, and 115 to Astronomy and Geology ; in all, 681 tickets ; besides upwards of 2500 visitors admitted.

The total receipts were	.	.	.	.	.	£.694	1	4
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The total expenditure was	.	.	.	.	.	617	13	11
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£.76	7	5
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In former funds,	228	17	7
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Property and funds at June, 1836,	£.305	5	0
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## No. II.

### GAYFIELD SQUARE SCHOOL, EDINBURGH.

THE following is a general outline of the plan followed in the Gayfield Square Ladies' School, conducted by Mr. and Miss Anderson.

: The instruction given in the first class, which is composed chiefly of children under eight years of age, includes reading, plain needlework, and information on a variety of interesting subjects, illustrated by pictures, &c., among which Scripture History holds a prominent part. Spelling, which, until the child is able to write, is of no practical use, is only taught by letter boxes. As this plan has been found effectual,

much valuable time in school, and irksome labor at home, are saved to the child, not to speak of the deliverance to friends, from the *task* of helping in the preparation of such lessons. The principles of arithmetic are also taught in this class by means of tangible objects.

In the second class, including girls from eight to twelve years, writing, arithmetic, geography, and grammar, are taught in addition to the more advanced stages of the other branches already enumerated, together with lessons on objects, on Mayo's system. And as soon as they can write, *written exercises* form part of their studies, in which correct spelling and composition are of course required.

In the third class, consisting of pupils of twelve years and upwards, (whose studies are chiefly superintended by Mr. A.,) writing, arithmetic, geography, history, elocution, and composition are continued, with the addition of French; two hours a week are also devoted in this class to instruction in scientific subjects; these lessons are committed to writing by the pupils, and afterwards revised by Mr. A., and spelling, composition, handwriting, as well as the theme itself, are all corrected when necessary. Two or three written exercises on different subjects are furnished by this class every week. The instructions given are illustrated by specimens, and a large collection of colored drawings and engravings, and the figures of the larger animals, from the elephant downwards, are exhibited of the full natural size, by means of an optical apparatus, by which also minute objects are magnified so as to be seen by all the class at once. The lessons on physical science, such as chemistry, natural philosophy, &c., are fully illustrated by numerous experiments performed in the class.

Few persons seem to be yet aware of the advantage arising from the elementary principles of science being thus gradually inculcated, and the study of them *continued through a course of years along with other branches*: It will be found, however, to be the method most suited for acquiring such a *general* knowledge of these subjects as is likely to be retained, and which will very greatly facilitate the study of any particular branch of science which it may be desirable to prosecute in detail at a future period.

In all the classes the pupils are encouraged to give their opinion, or state any difficulty that may occur to them on the subject before the class, which often gives rise to interesting conversations.

While intellectual improvement is thus aimed at, the still more important object of moral training is anxiously studied. A portion of the Scriptures is daily read and explained, and a reverential regard for their divine authority inculcated, while every opportunity which presents

itself, from incidental occurrences, either during class time or at play, is improved, to show the practical bearing of their precepts, and to enforce the duty and happiness of obedience. The behavior of the pupils, both in word and action, towards each other, is carefully watched over ; kindly feelings cherished, and the natural temper of each studied as far as possible, so that the benefit and happiness of *all* may be promoted. In order to attain this object, every stimulus, arising from the fault of a companion, is laid aside ; consequently there is no *Dux* in the school, no places taken, no prizes given, nothing of what is technically termed "trapping :'' This last is a custom which ought to be every where abolished, as it often leads the naturally forward into acts of rudeness and cunning, and at the same time, deprives the humble and modest of the reward for which they may have worked so hard.

It has been objected to this part of the plan, that the improvement of the pupil cannot be either so rapid or permanent without the usual stimuli of prizes, &c. Experience, however, has proved, that this objection is in general unfounded ; for in those cases where the pupil has remained long enough at school, and *where an interest has been taken AT HOME, in their school duties*, even although only in a very moderate degree, the progress of the pupils in real knowledge has been quite as great as could reasonably be expected ; but where only a *short* trial is made, the results must always prove unsatisfactory ; and although in some cases this kind of stimulus may have appeared necessary, the objects desired by means of it could have been attained only by the sacrifice of others of much more importance.

There are intervals of relaxation for a few minutes every hour, and a clear half-hour about mid-day, which, when the weather permits, is spent by the pupils in taking exercise out of doors, in a piece of ground attached to the school, the teachers at such times freely joining with them in their amusements.

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### No. III.

#### SCOTTISH INSTITUTION FOR THE EDUCATION OF YOUNG LADIES, 15 GREAT STUART STREET, EDINBURGH.

AMONG all the improvements which have of late been effected in education, none has attracted so much attention, or is so likely to be

followed with beneficial results, as the attempt which was made three years ago, by the directors of the Scottish Institution, to enlarge the sphere of female education ; and, by offering a liberal course of instruction at an economical rate, to encourage the study of many branches, which, if attended and paid for singly, would have been extremely expensive, and altogether beyond the reach of many of the respectable classes. The education of ladies in this country, has been formerly meagre and unsatisfactory. The ornamental branches, to which it was the ambition of parents to direct the attention of their daughters, had not in most cases been attended to for such a length of time as to enable pupils to acquire a thorough knowledge of them.

While the Institution thus affords, by its economical arrangements, a longer course of study for the ornamental branches, it offers also that deservedly popular knowledge which has of late begun to take a place in all enlightened academies. Natural philosophy, chemistry, natural history, geology and mineralogy, and physiology, have been regularly taught ; and the success which has attended the introduction of these subjects has been, on the whole, marked and encouraging. The improvement of the ornamental branches, then, with the introduction of such studies as have been termed new and useful, form the basis of the system of the Institution.

The first announcement of the Scottish Institution was received by many with distrust. They could not imagine that it was seriously intended to give the female mind that kind of instruction which had hitherto been confined to the learned ; and the undertaking was looked upon for a while, as a rash innovation on the established course of female education. The progress of the establishment, notwithstanding the alarm caused by its novelty, has removed these scruples. Not only the inhabitants of Edinburgh, but strangers from all quarters of the United Kingdom, have sent their daughters to obtain the benefit of the Institution ; and this session its success is so decided, as to give full assurance of its permanent establishment. To the inhabitants of the Scottish metropolis, it presents, besides its more important advantages, the convenience of having all desirable branches of study taught under the same roof ; and to strangers it unites, with the benefits of classes, the advantages of a boarding-school. The Institution is not a mere lecture-room or school-room, which the ladies can leave at the conclusion of a lecture or a lesson. The pupils are for the day under the general guardianship of the Lady Superintendent, to whom is intrusted the guidance of their morals and behavior. (It may be material for those at a distance to know that the Lady Superintendent receives boarders,

and that there are other boarding establishments connected with the Institution.

The following are the branches taught in this establishment :—*Elocution and Composition; History and Geography; Writing, Arithmetic and Book-keeping; Theory of Music and the Piano-forte; Singing, Drawing, and Perspective; Mathematics, Astronomy, and Mathematical Geography; French Language and Literature; Italian Language and Literature; German Language and Literature; Dancing and Calisthenics*; besides which, there are regular courses of lectures on *Natural Philosophy, Chemistry, Natural History, Geology and Mineralogy*, as well as on *Physiology, Ancient and Modern History*.

Each annual pupil entering on the 1st of October may, upon the payment of *five guineas* per quarter, attend as many of these branches, as she or her parents may judge proper; but pupils entering at any other period, or for a shorter time than a year, pay *six guineas* per quarter. The Lady Superintendent is assisted in her department by a qualified governess; and, besides two governesses in the musical department, there are three others who take an especial charge of the junior pupils in English, Geography, French and Arithmetic, and assist them in preparing their lessons for the classes of the masters. The masters who conduct the different branches, are most of them connected with other public seminaries, while all have been long resident in Edinburgh, and the public have thus had ample opportunity to judge of their qualifications. A Clergyman of the Established Church opens the Institution daily with devotional exercises.

There are at present upwards of eighty pupils attending the Institution.

*Edinburgh, 31 Dec., 1836.*

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## No. IV.

### ON AN IMPROVED METHOD OF TEACHING DRAWING.

TO JOHN ROBISON, Esq., Sec. to  
the Royal Society, &c.

22 CHARLOTTE SQUARE,  
10th January, 1837.

DEAR SIR,—In conversation I have heard you mention an improved method of teaching drawing for practical purposes, which you recom-

mended, and which appears to me to be calculated to be highly useful. Would you do me the favor to state your method in writing, and to permit me to print the description of it, in the Appendix to the new edition of my Lectures on Popular Education, which is now in the press? This may be the means of extending the knowledge of it, and especially of benefiting the operative mechanics in whose advancement you take so enlightened an interest.—I am, dear Sir, yours faithfully,

GEORGE COMBE.

Mr. Robison kindly favored me with the following answer to this letter:—

9 ATHOLE CRESCENT, 11th January, 1837.

DEAR SIR,—In reply to your request, that I should give you a brief statement in writing of the ideas which I entertain on the subject of teaching drawing, as a part of the ordinary course of popular education, I beg to say, as a preliminary, that, in what I have already stated to you verbally, and in what I may now write, I wish to be understood as referring chiefly to that art or power of delineating the objects presented to our eyes, which may be useful to every one in the ordinary habits of life; and that I do not take into consideration the further training which may be required for those who aspire to cultivate the higher departments of the Fine Arts.

I now proceed to say, that it appears to me that every one who can write is capable, with a slight effort, of making every line or mark which is wanted in order to represent any object presented to him. It is not, therefore, the mechanical use of the pen or the pencil, which requires to be taught, so much as the art of looking at objects, and of *recognising what we really see*. When the habit of noting the true visual forms of objects, has been acquired, (which it will soon be, if cultivated under the directions of an intelligent instructor,) the power of delineating the outline will not be long found wanting; the perception of the effects of light and shade may be acquired in the same way, and they will then be rendered on paper by the pupil with a degree of truth which he could not attain by any time or labor spent in copying the drawings of others.

If a young or uninstructed person be required to make a representation of such an object as a common pencil, he will probably proceed to mark on his paper an outline of the actual length and breadth of the pencil, but he will be at a loss to show that it is round and not square; again, he will not be able without consideration, or perhaps explanation, to delineate on paper the different appearances which the pencil as-



sumes when held nearer to, or further from the eye ; or in positions more and more oblique until nothing be seen but the circular end. A little pains on the part of the instructor, would lead a pupil to observe and comprehend all that is required to do this, by making him attend to what he really sees, and the lesson, when once acquired, would be in little danger of being forgotten, although it in fact includes the whole doctrines of perspective.

In forming any institution for teaching drawing *as an useful art*, I should therefore propose that the pupils should, from the very commencement, be exercised in noting and delineating the appearances of a few simple objects, presented to their view at varied distances, heights, and degrees of inclination. A convenient object may be found in a cubical box of wood, fitted to slide on an upright rod or stand, on which it may be fixed at any desired height, by a hollow through its axis. If this model be set in front of a pupil, at such a distance that it can be conveniently seen, and its height be made that of his eye, and one of the sides be parallel to his face, then, on noting its appearance, he will soon observe that it may be represented by a square outline, parallel to the sides of his paper. If the model be then raised, by sliding it up the rod, the pupil will find that a change in the *apparent* form has taken place, and that his outline must include a representation of the bottom, which he will be enabled to give, by combining his present observations with what he learned in studying the changes of position of the pencil in the earlier lessons. He will also find, that the degrees of light falling on the two faces which he now sees are different, and require different shadings from the pencil. In the first case, the single face of the cube which he saw may have been either lighter or darker than the distant back-ground, and in the delineation some shading may have been required on the back-ground, or on the object, according to which appeared darkest to him ; but in this second case, he may have three degrees of light to represent, according to existing circumstances. In the same way, the position of the model may be varied, both in respect to figure and to light ; or, if a class be under instruction, the pupils may interchange their places round the object, and each in succession take similar views, and compare the results at the conclusion of each series.

It is obvious that such a system of instruction may be pursued to a great extent, and with the variations, which may be required according to the views of the pupils ; and that, even for those who intend to pursue the higher branches of the Fine Arts, a better foundation could

hardly be given for enabling them to understand and profit by the examples left by the great masters.

I shall be very happy that these ideas meet your approbation ; and if they do so, you are at liberty to make any use of them which you may wish.—I am, dear Sir, very faithfully yours, .

JOHN ROBISON.

THE END.







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